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MARINE GRAVITY DISCREPANCIES IN THE SOLOMON ISLANDS

LAWRENCE WARREN I'ANSON, JR.

MARINE GRAVITY DISCREPANCIES IN THE SOLOMON ISLANDS

by

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Lieutenant Commander, United States Navy
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Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN PHYSICAL OCEANOGRAPHY

from the

NAVAL POSTGRADUATE SCHOOL
June 1968

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ABSTRACT

In 1964 a reconnaissance marine gravity survey was conducted in the Solomon Islands by the Hawaii Institute of Geophysics, University of Hawaii. In 1965 a more detailed survey was conducted in the same area by the same investigators. In one particular area of the survey, gravity anomalies obtained in 1964 differed from those obtained in 1965 by as much as 168 milligals. In other areas where differences did occur, these were on the order of 25 milligals. This thesis reports the investigation carried out to determine the reason or reasons for the large discrepancies. Navigational positions were checked; the bathymetry obtained in 1964 was compared with other bathymetry available; the Eötvös correction was recalculated with the corrected station position and better resolution; and the gravity records were examined to determine if large vertical accelerations of the measuring platform could be the cause of the discrepancies. Some errors were discovered, but the large differences could not be eliminated.

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ACKNOWLEDGEMENTS

The author is extremely grateful for the help given by Dr. John C. Rose of the Hawaii institute of Geophysics, University of Hawaii. He kindly furnished all the data available to him and gave of his time to explain the procedures that he used in reducing the data, and to suggest approaches for the author to follow in treating the subject. Professor Denner of the Naval Postgraduate School has been indispensable in supplying aid in the form of detailed direction in the writing of the thesis and in providing source material and aid in securing information from other institutions and geophysicists.

CHAPTER I

INTRODUCTION

1. MEASUREMENTS OF GRAVITY AT SEA

Reasons

Gravity is measured for a number of reasons, and the results can be used by different branches of the scientific field. For the geologist, gravity anomalies can help in his interpretation of the geological structure of the earth in a particular area; for those interested in geodesy, gravity anomalies aid in determining the shape of the geoid; for the geophysicist engaged in petroleum exploration, the measurement of gravity has proved to be a valuable tool for reconnaissance exploration.

Anomalies and Corrections

For gravity measured on land, corrections must be applied to observed gravity in order to reduce it to the value which would be observed on a perfectly uniform spheroid. This spheroid is completely smooth with the vertical distribution of density everywhere the same. The free-air correction is applied to correct the observed gravity to that which would be observed at sea level. It is a positive correction for gravity observations made above sea level. The Bouguer correction takes into account the attraction of the rock material between sea level and the position at which gravity is measured at some elevation above sea level. It is a negative correction in that it is designed to remove the rock material between the gravity

station and sea level. The topographic correction takes into account the attraction of any material higher than the gravity station and of material which would be needed to fill any hollows below in order to construct a level earth. (Dobrin, 1960). The topographic correction is always added to the observed gravity. There is still another correction, the isostatic correction, which may be applied; it usually is omitted.

At sea, the correction to observed values is somewhat different. Since measurements at sea are made essentially at sea level, the free-air correction is trivial and not made. (Worzel and Harrison, 1963). The observed gravity value is corrected only for the effect of the Coriolis force due to the vessel's motion on the rotating earth. This Eötvös correction is determined by the equation:

$$(1)\quad \delta g = 7.487\, S \sin C \cos\phi + (S^2/240.8)$$

where C is the true course made good, ϕ the latitude and S the east-west component of ship's motion. (Worzel and Harrison, 1963). It is additive for an easterly course and subtractive for a westerly one. Although the Eötvös correction is mentioned in connection with gravity measurements made at sea, this correction should be applied to measurements made from any moving platform. There is also a term in the Eötvös correction which accounts for motion in a north-south direction, but this involves less than one milligal change in observed gravity for platform speeds of

less than 16 knots and has been omitted in Equation (1). The value of gravity at sea-level for the latitude of the observation is determined by the International Gravity Formula:

$$(2)\quad g = g_E (1 + \beta \sin^2\phi + \epsilon \sin^2 2\phi) \text{ cm/sec}^2$$

where g is the value of gravity at any point of the surface of the reference spheroid, g_E (978.0490) its value at the equator, ϕ the latitude, and β (0.0052884) and ϵ (-0.0000059) are constants. (Heiskanen and Vening Meinesz,1958). The sea free-air gravity anomaly is the difference between the gravity measurement and the value of gravity computed from equation (2). It is expressed in milligals (1 mgal = 0.001 cm/sec^2).

Free-air anomalies result from a difference in the distribution of masses on the real earth and the distribution assumed for the reference spheroid. Small-scale variations at sea are often closely related to the change in depth of water. These variations may have to be removed before other features, beside the ocean bottom topography, can be examined. A method for removing the effect of the lower density of sea water is to correct the measured gravity for the density contrast between the water and appropriate rock material. This correction is added to the free-air anomaly and the resulting anomaly is the Bouguer anomaly. According to Worzel and Harrison (1963), the gravity anomaly profile will show no correlation with bottom topography if the correct density is chosen,

and if there is no sub-bottom compensation.

Vening Meinesz (Heiskenan and Vening Meinesz, 1958) examined several sea gravity stations at random and pointed out that the Bouguer anomalies increased strongly in a positive sense with increasing depth. Averaging the depths and anomalies at six stations, he computed the Bouguer anomaly which should exist for the average depth if the oceans were in complete isostatic equilibrium. The difference between the computed and the average anomaly was ten milligals which led him to conclude that isostatic equilibrium prevails at sea.

2. HISTORY OF GRAVITY MEASUREMENTS IN THE SOLOMONS

Grover (1966) has summarized the gravity surveys which have been conducted in the Solomons, and this discussion will not attempt to do more than mention briefly what he has said. Figure 1 shows the Solomon Islands with the names of the major islands appearing.

Planned Expeditions

The idea of a gravity survey of the island chain first came up in 1949, and a survey was later planned for 1951. Also, Woollard of the University of Wisconsin World Gravity Project scheduled a visit to the islands in 1951 to tie the gravity of the airfields to the world gravity network; however, neither his visit nor the survey took place.

Initial Surveys and Proposal

One British and two United States submarines made

Fig. 1. The Solomon chain with the names of the major islands shown.

gravity surveys in the region but did not provide any information useful in the study of the Solomons. In 1960 Oil Search Limited of Australia conducted a gravity survey of the Guadalcanal plains and made coastline and offshore island observations. The Bouguer anomalies indicated that the basin was divided into two parts by a gravity-high extending northward from a ridge in the center of Guadalcanal to the coast. What were believed to be the steepest gravity gradients known in the world were discovered. Economic accumulations of petroleum were not indicated, however, and the company did no further survey work. In 1961 a representative of the University of Wisconsin World Gravity Project made gravity observations at all airfields in the Solomon Islands. In October of that year, a proposal was made by the Geophysical and Polar Research Center of the University of Wisconsin to the National Science Foundation for a gravity and magnetic survey of the Solomon Islands, New Britain, New Guinea, and the Bismarck Islands. Woollard mentioned in the proposal that knowledge of the earth's crustal structure in this area was based on hypothesis. In a separate paper, Woollard et al. (1967) noted that as a result of analysis of the orbital perturbations of the first earth-orbiting artificial satellites, a marked bulge in the geoid was discovered. This bulge, indicating excess gravity, had a center corresponding roughly with the Solomon Islands. When electronic and optical tracking data of additional

satellites was analyzed, it was proposed that the Solomon Islands region was the area of the Earth having a maximum anomalous mass. The cause of this mass effect could not be determined. Was it related to the core of the earth, or was it the integrated effect of many small, near-surface mass inhomogeneities of crustal and upper mantle orgin? The little information which was available seemed to increase the interest in a detailed survey. The proposal was approved and a land survey of the Solomons began in March, 1963. About 2,000 gravity stations were occupied from this date until January, 1964.

The HMS COOK was originally scheduled for the sea gravity phase of the regional study, but an uncharted pinnacle prevented her from conducting the sea survey planned for 1964. On short notice, the USS WANDANK(ATA 204) was made available for the month of November, 1964, and was used for two weeks in the region collecting data. The HMS DAMPIER was later made available for an October-December 1965 survey.

CHAPTER II

THE WANDANK CRUISE

This chapter was written to present the ship and the scientific party and to discuss the equipment used, the significant events of the cruise, and to lay a foundation for the remainder of the thesis.

1. THE WANDANK AND THE SCIENTIFIC PARTY

The WANDANK is an auxiliary ocean-going tug with a displacement of 850 tons, a beam of 33 feet, and a length of 143 feet. The main deck has a large working area aft, but it is normally awash in other than extremely calm conditions. There is limited working space on the weather deck immediately above the main deck. The ship, being diesel powered, has a long cruising range; so, from this standpoint, she was ideally suited to make the 1300 mile voyage from her homeport in Guam, Mariana Islands, to the Solomons.

The scientific party aboard consisted of Rose and Ichinose of the Hawaii Institute of Geophysics and Maples of the Naval Oceanographic Office; Rose served as chief scientist. The author was Commanding Officer of the WANDANK.

2. EQUIPMENT USED IN SURVEY

Gravimeter

A LaCoste-Romberg air-sea gravity meter, S2A, was made available by the Office of Naval Research. A simple schematic

of this gimbal suspended instrument appears in Figure 2. The effects of vertical accelerations due to ship motion are filtered out by means of a low pass filter. In this meter, horizontal accelerations are allowed to swing the meter. " The sensitive axis, OA, of the meter is then aligned in the direction of the vector sum of gravity and the horizontal acceleration, and the meter measures this vector sum." (LaCoste-Romberg, p.5) This apparent gravity differs from actual gravity by the Browne Correction

$$(3) \quad a_h = (\text{CONSTANT})\,\theta^2$$

where θ is the angle between the vertical and the sensitive axis. (LaCoste-Romberg). The horizontal accelerometers provide a stabilized reference system in space to permit determination of this angle. An analog computer calculates the Browne Correction and subtracts it from the indication of the Gravity Meter Unit. The sensitive element or beam is hinged at O and the other end is supported by a "zero length spring", the tension being varied by means of the measuring screw. By use of the spring, the behavior of the beam is made independent of its position in the gravity meter. The force exerted by the spring is proportional to its length and is represented by a vector AB equal to its length. When the gravity meter is in equilibrium with gravity, the vector forces at B form a closed triangle. AB represents the spring force; OB represents the force

exerted by the beam at B; and AO represents gravity. The velocity of the beam is used to measure the difference between gravity and the length of the vector OB, defined as the spring tension, S.

$$(4)\quad g = S - K\frac{dB}{dt}$$

where B is the beam position, K is a constant and t is time (LaCoste-Romberg). If the vertical accelerations associated with the movement of the platform are filtered out, the equation becomes:

$$(5)\quad \bar{g} = \bar{S} - K\frac{d\bar{B}}{dt}$$

where the bars denote filtering or averaging. At this time the correction for horizontal accelerations is made by subtraction from S, which results in the correction to g. The beam position and the averaged or filtered beam position are recorded on the beam position recorder. The beam is kept positioned near its center by adjustment of the spring tension by use of a knob on the counter unit. The knob is connected by synchros to the measuring screw. The record of $\bar{B}$ is differentiated graphically in order to obtain g from equation (5). Laboratory tests indicate an accuracy of $\pm$ one milligal for horizontal and vertical accelerations less than thirty gals (30 cm/sec^2) and an accuracy of $\pm$ two milligals for accelerations less than fifty gals (LaCoste-Romberg).

Other Equipment

A Varian Associates transistorized, marine model,

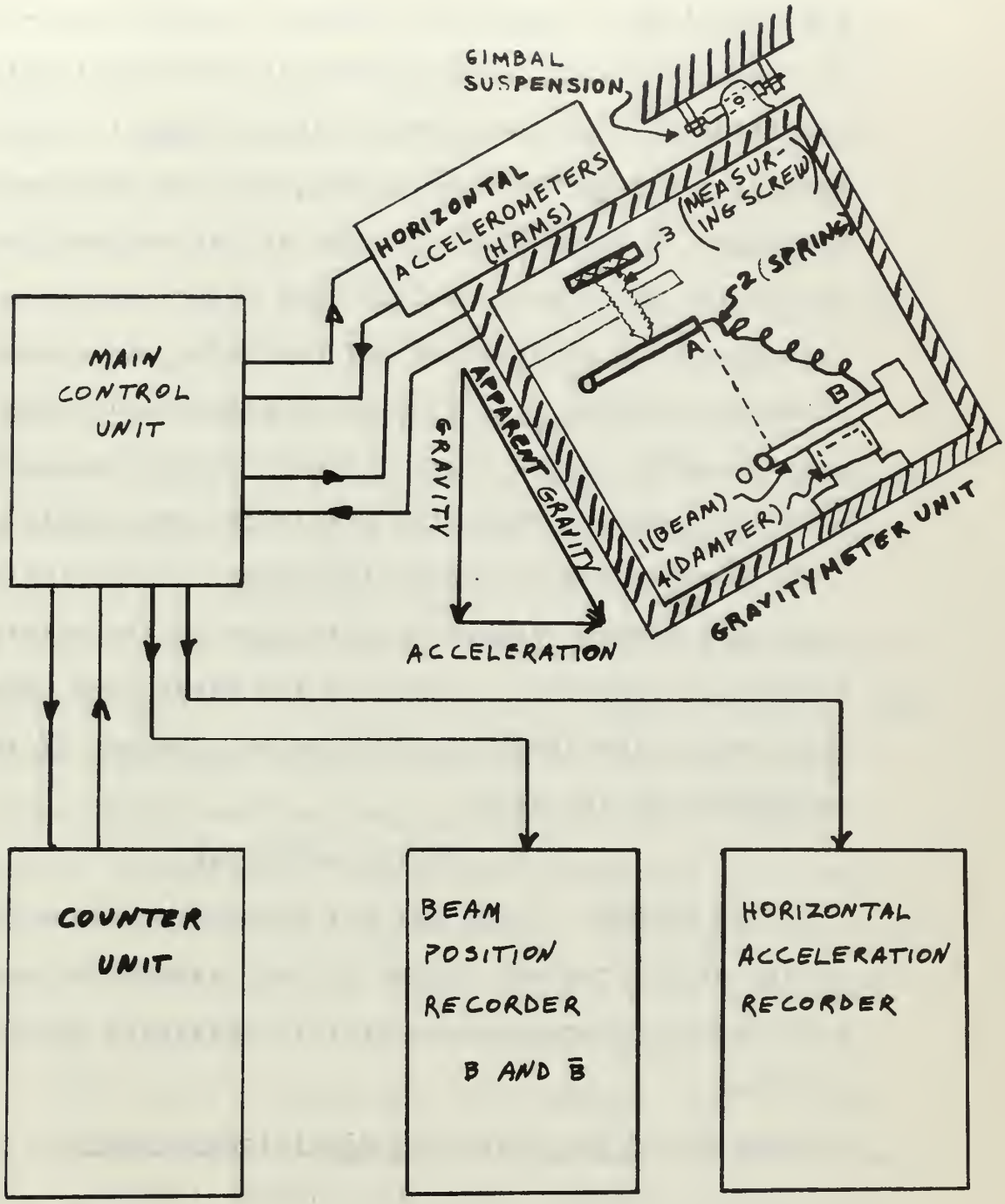


Fig. 2 Block diagram of LaCoste-Romberg air-sea gravity meter (after LaCoste-Romberg).

proton-precession magnetometer was aboard for the cruise, but it failed to function properly. A McKiernan-Terry Mark XV precision depth recorder was also made available. A representative of the company flew to Guam in hopes of observing its performance at sea, but the recorder was misplaced in transit and did not arrive on Guam until after the cruise had begun. Depths were determined by a UQN-1 fathometer. A portable diesel generator was placed on the uppermost weather deck to provide electrical power for the gravity meter, and a small air conditioner was used to cool the space in which the gravimeter was located. The gravity meter and air conditioner were placed inside a temporary plywood "shack" constructed in the crew's berthing compartment located on the first deck below the main deck. The location is above and forward of the metacenter of the ship.

3. CRUISE NARRATIVE

The WANDANK cruise was not intended to be a detailed survey of the region; rather it was designed to establish a series of reconnaissance gravity traverses around the islands.

Discussion of the Track and Significant Events

On 31 October, 1964, the WANDANK left Guam on the first leg of the cruise. It was planned to operate the gravity meter throughout the entire cruise, but sea conditions prevented the measurement of gravity until the ship

approached New Ireland on the 5th of November. However, a land gravity measurement was made at Truk, Caroline Islands, during a brief stop there on 2 November. The ship stopped in Rabaul, New Britain, on the 6th where it refueled, and land gravity measurements were made at the gravity station at the airport and at the main wharf. The base gravity value for the cruise was the Potsdam value of gravity at the main wharf. This was transferred by land gravity meter from the international value at the airport. It was later determined from closures at reoccupations at Honiara, Guadalcanal, Rabaul, and Guam that a negative drift occurred during the cruise; and a 2.0 milligal correction was added to the base value to account for this drift.

The ship left Rabaul on the 6th and began the survey of the northern part of the Solomons chain about midnight. Sea conditions were ideal and remained so for about the next week. The ship's surface search radar, however, became inoperative shortly after the survey began; and this caused some modification of the planned track. The exact date that the radar failed is not now known, but the ship's log shows that it was inoperative on the 12th (Quartermaster's Notebook). There was no replacement part aboard, and the radar remained inoperative throughout the remainder of the cruise. On the night of the 11th of November, the ship encountered a swell running from the northeast which, striking the port beam of the ship, prevented data collection on a southeast

course. On the 12th, when the ship turned to the west to survey the southern side of the Solomons chain, a modification of the proposed track was made. In order to pass through a particular area in the time allotted and to measure gravity while doing it, the ship slowed to about 8 knots, steamed in a southwesterly direction with the swell following and made gravity measurements for about one and one-half hours. Then the ship increased speed to about 11 knots and steamed in a westerly or northwesterly direction for about one hour. No gravity measurements could be made except when the ship was running with the swell. The above procedure allowed the ship to make good the desired advance and to collect gravity. On the 13th, when the ship was within the lee of San Cristobal Island, she was able to return to her proposed track. On the 15th, a stop was made at Honiara, Guadalcanal, to allow Rose to confer with representatives of the Department of Geological Surveys, British Solomon Islands. It was originally planned to make this a brief stop and then to make a roundtrip transit of The Slot. Without the use of the radar, and because of the lack of navagational aids, a transit of The Slot in other than daylight conditions was ruled too dangerous, and this plan was canceled. In Honiara, Rose learned that the area of Sealark Channel and Lengo Channel might prove interesting from a gravity standpoint; the ship remained in Honiara overnight in order to transit this new area on the morning of the 16th.

The remainder of the cruise was carried out as planned. An overnight stop was made on the 20th of November in Rabaul where the ship refueled and took on fresh provisions. The return to Guam was along a different track as the ship passed west of New Ireland rather than east. Sea conditions did not permit measurements to be made on the return trip. The ship arrived at Guam on the 26th of November. Figure 3 shows the track made good by the WANDANK, and Figure 4 shows the lines of gravity data collected.

Navigation and its Accuracy

Celestial navigation was employed throughout most of the cruise. Under the best conditions, a celestial line of position can be considered accurate to within two miles on either side of the line. Such accuracy considers errors in altitude measurement only and does not allow for errors which might be introduced through mistakes in timing, computation of the line of position, or in plotting. Some lines of position might be more accurate and others less. When several lines of position are plotted to obtain a fix, it should be expected that some fixes might be in error by three or four miles (Hill II, Utecaard, and Riordan, 1958). Piloting or determining one's position by visual observation of prominent geographical features and/or aids to navigation was employed whenever possible. This method is much more accurate than celestial means, but the ship was seldom close enough to land to use it. Loran coverage of the region was not sufficient

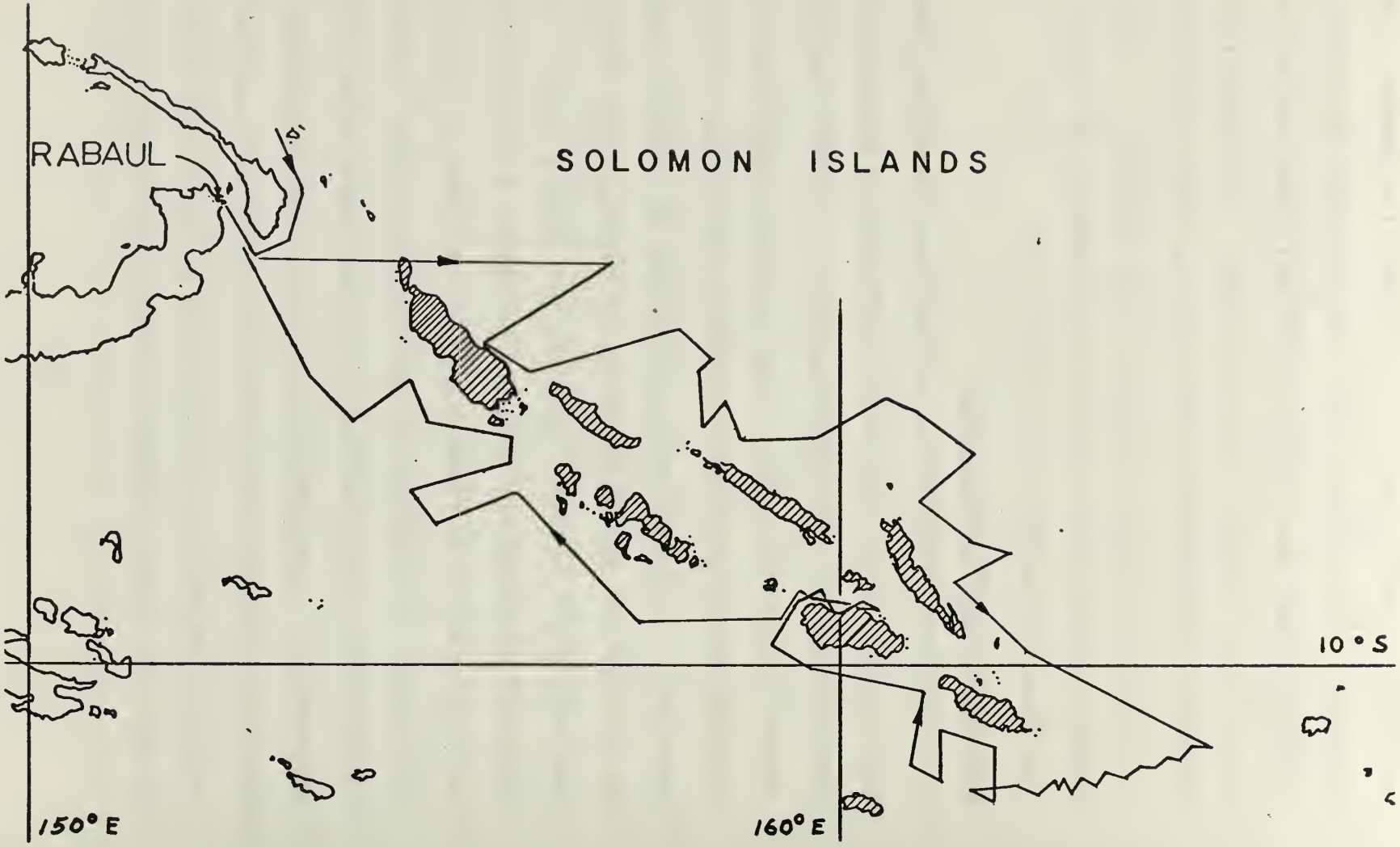


Fig. 3. The track of the USS WANDANK (ATA 204) during gravity survey in November, 1964. (after Rose, 1967)

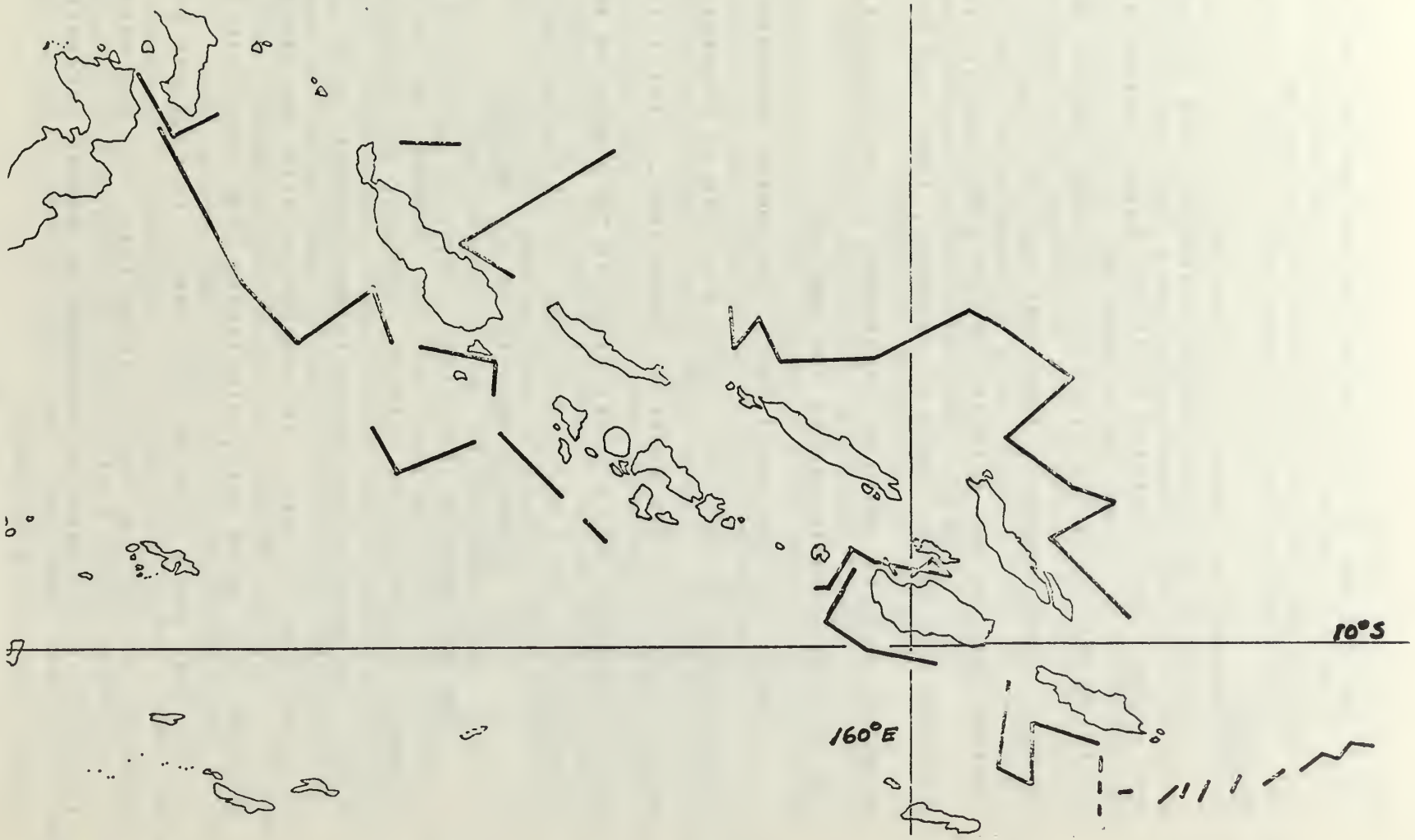


Fig. 4. Gravity tracks made good during 1964 survey.
(after Rose, 1967)

to allow the use of this method of navigation, and radar navigation was not possible much of the cruise.

Weather

The ship collected synoptic weather data throughout the cruise and submitted it to the Naval Weather Service, Environmental Detachment, at the National Weather Records Center. Unfortunately, this data was not retained; the Naval Weather Service was able to furnish some reports from the Solomons during the month of November, 1964, but only nine synoptic reports could be considered as representative of the weather experienced by the WANDANK.

Except for the swell conditions which disrupted gravity measurements on the 11th, 12th, and 13th of November, the sea and swell seldom exceeded three feet. Visibility was good throughout the cruise; very few rain squalls were encountered; and a wind exceeding ten knots was rare.

4. REPORTED RESULTS OF ALL CRUISES

The HMS DAMPIER conducted a detailed survey of the Solomon Islands during October, November and December of 1965. Sea gravity and magnetic measurements were made from this modified frigate. In comparison with the WANDANK, the DAMPIER is a large ship, displacing 2230 tons with a length of 307 feet and a beam of 38.5 feet. In November and December of 1966, a team of scientists from the Hawaii Institute of Geophysics conducted a seismic refraction expedition in the Solomons.

The results of the gravity and magnetic studies made in the Solomons have been reported (Rose, Woollard, and Malahoff, 1967). This report included a preliminary map of the bathymetry of the region, free-air and Bouguer gravity anomaly charts, and a magnetic anomaly chart. Preliminary interpretations of the gravity and magnetic findings have been made. The results of the seismic refraction expedition, while considered in this report, were the subject of a separate publication (Woollard, et al., 1967).

5. PURPOSE OF REMAINDER OF THESIS

After reading the above paragraph concerning the reporting of the results obtained from the various cruises conducted by the Hawaii Institute of Geophysics, one might question why another paper was needed. Although the WANDANK cruise was meant only as a reconnaissance cruise, much data was obtained at no small expense. Aside from the bathymetric data obtained and one section of gravity data (that collected along the track perpendicular to Bougainville), the only use made of the WANDANK data was that mentioned by Grover. He stated, "the usable results were sufficiently conclusive to remove all objections to the provision of funds by the National Science Foundation for further survey." (Grover, 1966). This is not meant as a criticism of Rose and others at the Hawaii Institute of Geophysics, as he in particular was extremely helpful in making this paper possible. So much data was available to them, that they used that which seemed

most accurate and which best fitted their needs. It was felt that another look at the WANDANK data might be fruitful; any obvious discrepancies would be corrected and the data would be available in best possible form for others to use.

A second purpose of the paper and one related to the first, was to explain why, in one particular region, gravity anomalies obtained from WANDANK data and those obtained from DAMPIER data differed by about 150 milligals.

CHAPTER III

RESULTS OF THE WANDANK CRUISE

Free-air and Bouguer anomalies for the area of the Solomon Islands covered by the WANDANK were examined. Correlations of the anomalies with depth and latitude, and trends with each other and depth were produced by use of computer programs.

I. FREE-AIR, BOUGUER ANOMALY, AND DEPTH CORRELATIONS

In order to show the anomalies and how they vary with each other, and with depth, Figure 5 is presented. It represents a Hollerith field printout of results of the gravity data reduction program developed by Rose. This particular section of the ship's track is from the 11th of November. The columns at the top of the figure give the values plotted; FAA is the free-air anomaly in milligals; MNDBA is the Bouguer anomaly in milligals. The Bouguer anomaly was determined by correcting the observed gravity (corrected for ship's motion), using the density difference between basalt and seawater in an equation derived from Vening Meinesz, (Heiskanen and Vening Meinesz, 1958) which is basically:

$$(6) \quad \Delta g = 0.04185\,(\bar{\rho} - 1.027)\,d$$

where d is the depth in meters and $\bar{\rho}$ is the mean bulk density of the basalt column of depth d. $\bar{\rho}$ was determined by a linear

interpolation using a modified form of Moore's density vs. depth curve (Moore, 1965). Rose (1967) preferred a terminal density other than the one described by Moore. Although the results were not presented here, densities ranging from 2.30 g/cm^3 to 3.00 g/cm^3 taken in steps of .05 g/cm^3 were also employed in the data reduction and Bouguer anomalies determined for each density value. Depths in Figure 5 are given in meters. D represents depth, F the free-air anomaly, and B the Bouguer anomaly. When neither the free-air nor the Bouguer anomalies were determined, they were assigned values of + 480 milligals. When only the Bouguer anomaly was not determined (because depth was not known), asterisks appear in the MNDBA column and no value of B was plotted. Zero depth means that no depth was obtained at that particular gravity station. The right hand section of the figure shows that the free-air anomaly increased with decreasing depth while the Bouguer anomaly decreased under the same conditions. This trend was not the only one observed in the data. Figure 6 which presents data collected on the 18th and 19th of November has trends which are in agreement with Figure 5. The middle section of Figure 7, which also presents data collected on the 19th as well as the 20th of November, shows that both the free-air and Bouguer anomalies increased with decreasing depth and decreased with increasing depth, the free-air anomaly doing so much more markedly. In the right hand section of Figure 7, the trends return to the

pattern indicated in Figure 5. What should the trends be? Would it have been accurate to eliminate some of the data for failure to follow standard trends? Figure 8 shows the gravity anomaly profiles across Seamount Jasper. The variations of the anomalies with depth is that of Figures 5 and 6. Worzel and Harrison (1963) stated that the most rapid variations of free-air anomaly are due to the changing effect of bottom topography, and that small-scale variations in the free-air anomaly are often closely related with changes in the depth of the water. Figure 9 shows the same trend of anomalies with depth as does Figure 8 for a different section of the ocean. In the case of Figure 8, Worzel and Harrison noted that 2.3 g/cm^3 is the correct density to use for rock substituted for sea water in determining the Bouguer anomaly, because such a density produces a profile which shows no correlation with bottom topography if there are no concealed masses. In this case, the rock of density 2.3 g/cm^3 eliminated the gravity effect of the seamount altogether. Figures 5 and 6 are examples where free-air anomaly and depth varied as expected, and the density used for determining the Bouguer anomaly was not the correct one to eliminate the effects of the topography. In the center section of Figure 7, the Bouguer anomaly was almost constant in the scale presented, and it may be that the density used for the column of basalt eliminated the topographic effects. The anomaly trend may also be due to the sub-crustal structure.

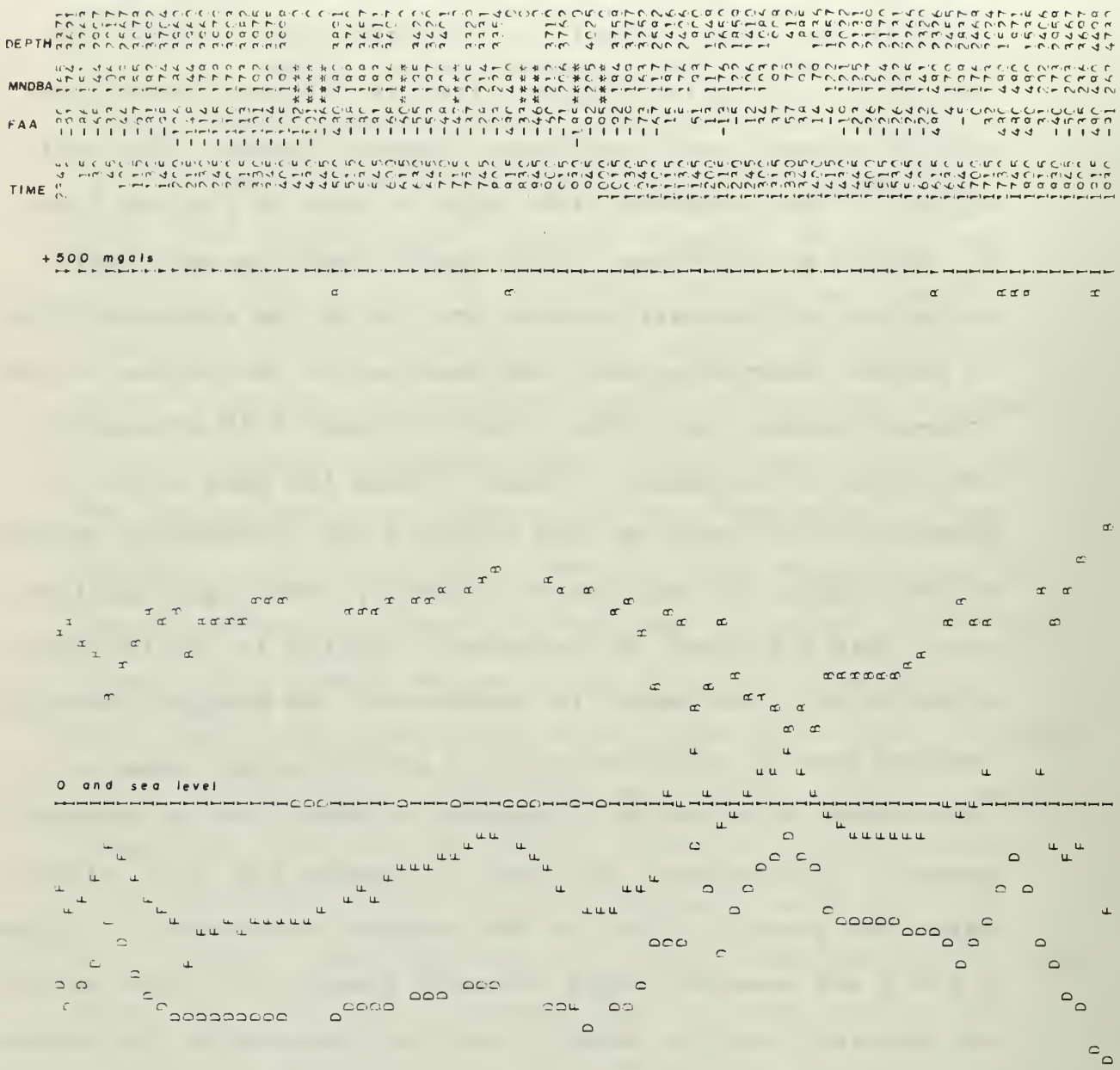


Fig. 5 Free-air anomaly(F), Bouguer anomaly(B), and depth(D) on 11 Nov 1964.

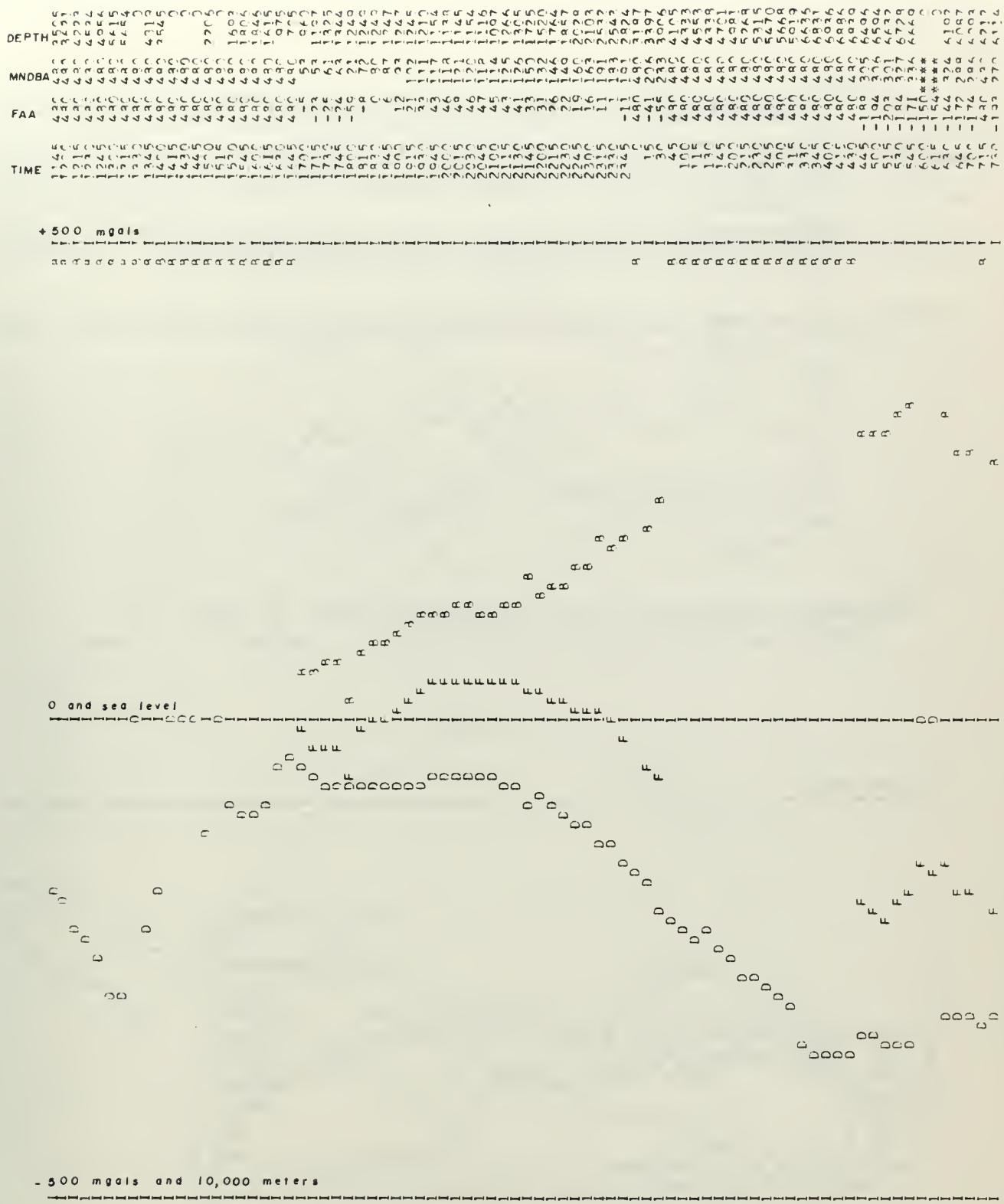


Fig. 6. Free-air anomaly(F), Bouguer anomaly(B), and depth(D) on 18-19 Nov 1964.

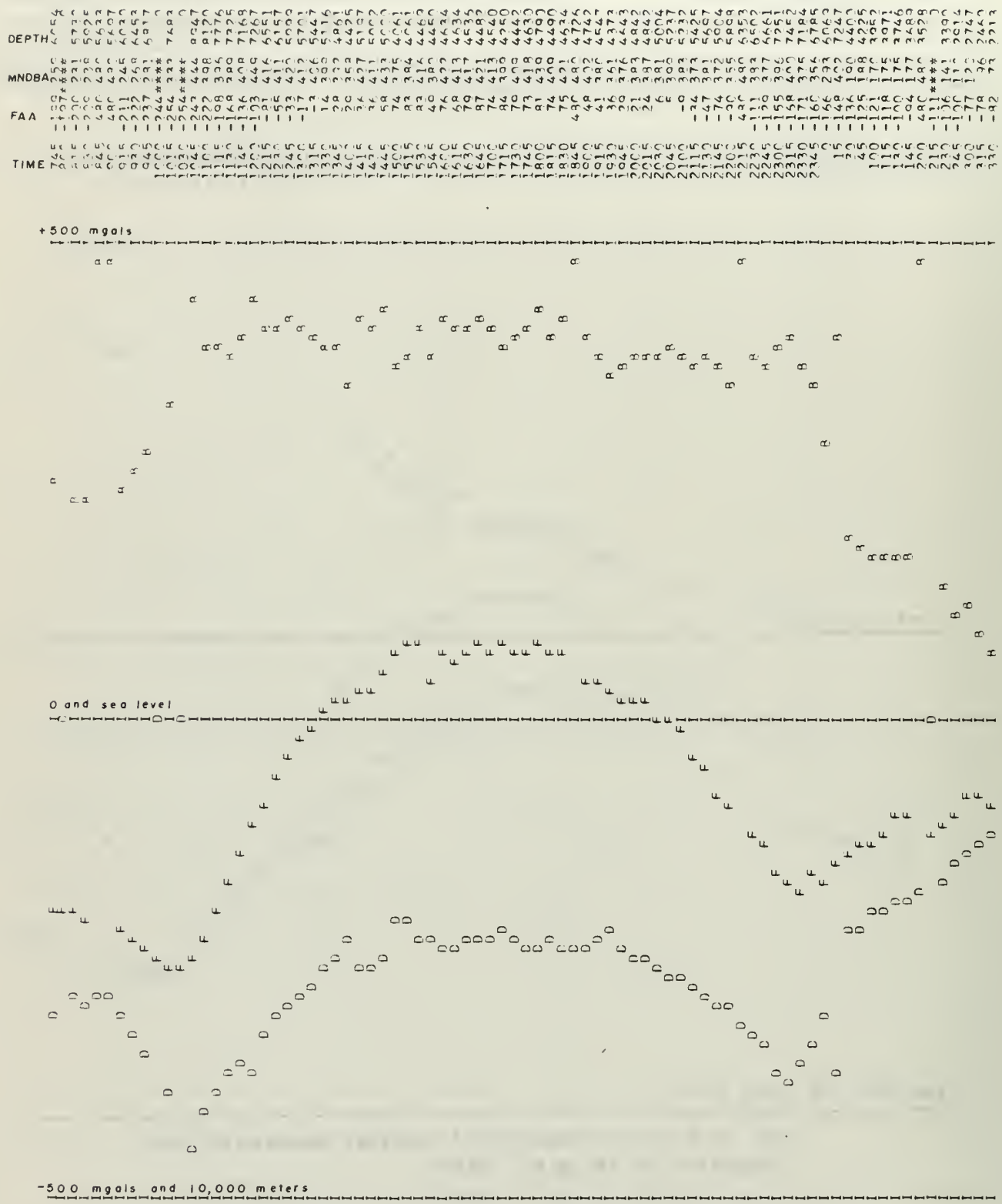


Fig. 7. Free-air anomaly(F), Bouguer anomaly(B), and depth(D) on 19-20 Nov 1964.

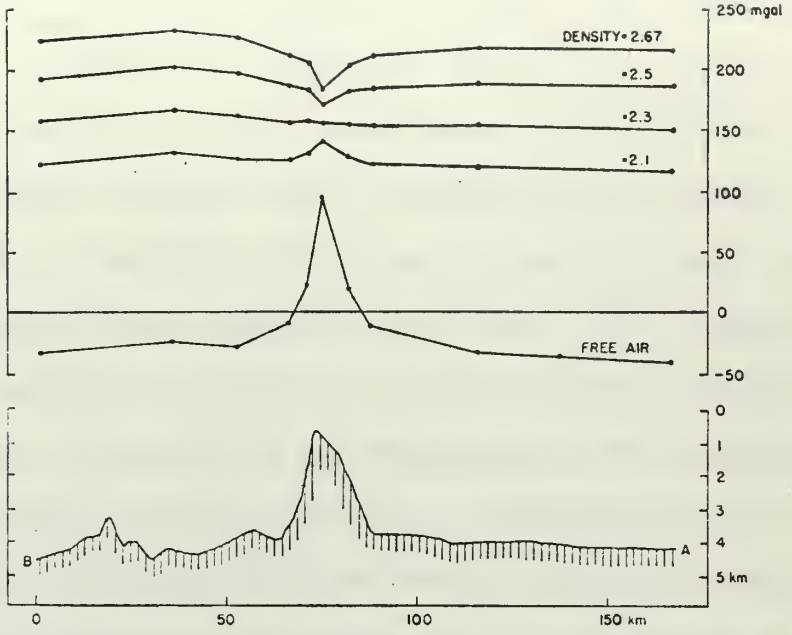


Fig. 8. Gravity-anomaly profiles across Seamount Jasper. (After Harrison and Brisbin, 1959)

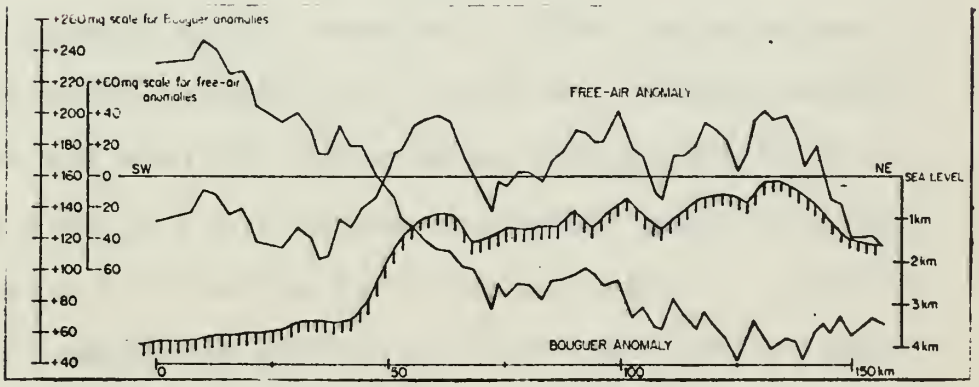


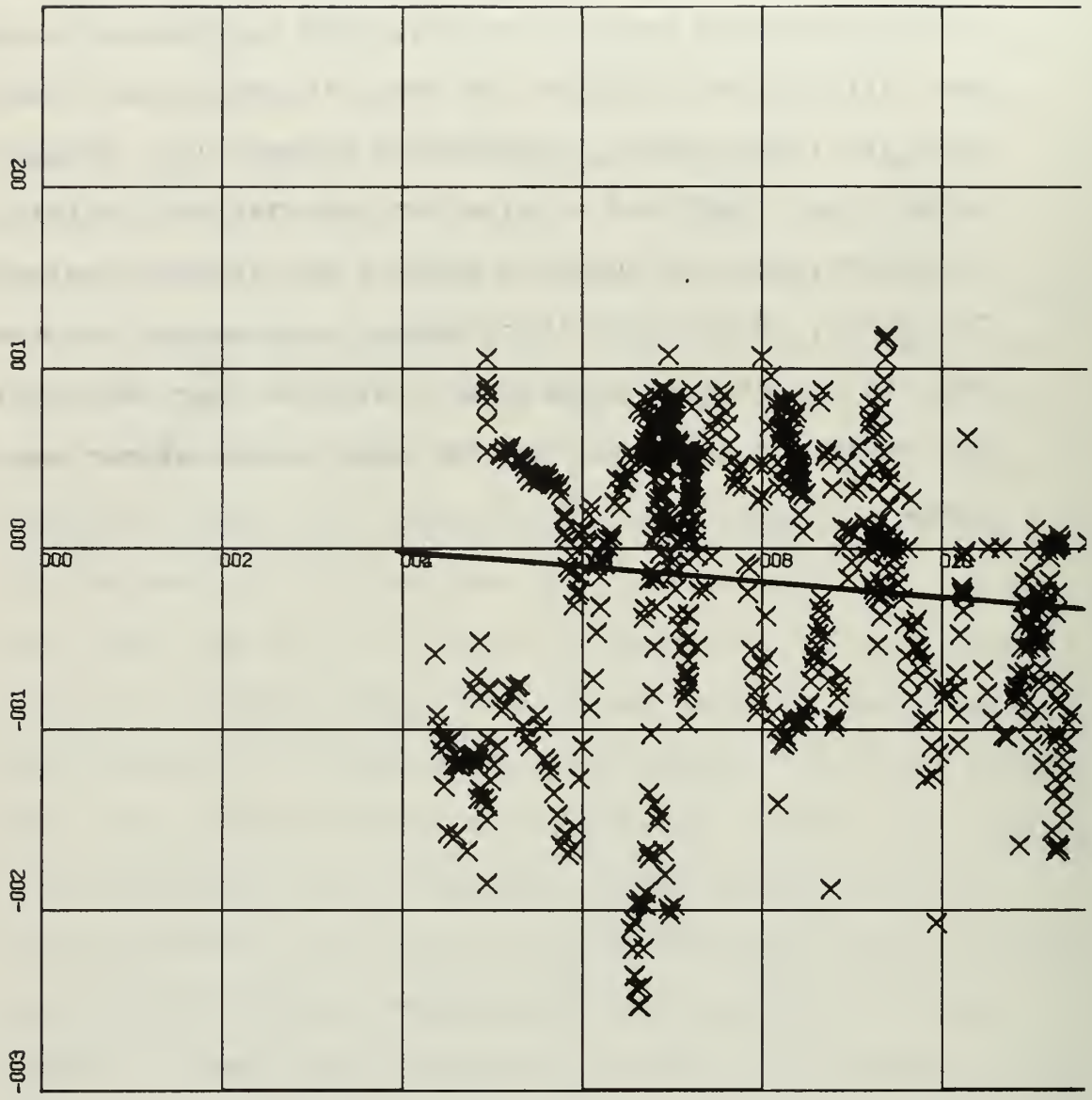
Fig. 9. Continental slope profile off Southern California. (After Harrison, 1959)

2. ANOMALIES CORRELATED SEPARATELY WITH LATITUDE AND DEPTH

Figures 10 through 14 (pp. -) were all constructed by computer subroutines. The x's mark the data points and the straight lines (on all but Figure 14) indicate a least squares fit to the data. Depths were plotted in meters, anomalies in milligals, latitude in degrees and tenths of degrees. The scales of the plots were printed at the bottom of the graphs. For example, in Figure 10, the x-scale was 2.00E + 00 units per inch or 2 degrees of latitude per inch were plotted on the x-axis; the y-scale was 1.00E + 02 units per inch or each inch represented 100 milligals. The grid superimposed on the graph was one inch by one inch. It was hoped that the plot of free-air anomaly vs. latitude shown in Figure 10 would reveal some strong trend in the anomaly with latitude. No such trend was present. Figure 11 shows that there was some trend of the free-air anomaly with depth, as was expected, with a decrease in the anomaly with increasing depth. The type of correlation to be expected from a plot of the Bouguer anomaly and latitude was not known. Figure 12 shows that there was no trend of this anomaly with latitude. It was expected that a trend did exist between the Bouguer anomaly and depth, and this was shown in Figure 13. No trends were evident nor expected in the plot of free-air anomaly and the Bouguer anomaly shown in Figure 14.

No significant improvement in fit was obtained by using

polynomials of higher degree than first. The computer subroutine determined the standard deviation of the data to serve as a goodness of fit parameter. Values of the goodness of fit parameter ranged from 105.17838 for Bouguer anomaly and latitude to 62.255325 for free-air anomaly and depth with the lower number indicating a better fit. Bouguer anomaly and depth had a value for the standard deviation of 62.473709, and the free-air anomaly and latitude value was 74.975922. Second and third degree polynomials did improve the fit for Bouguer anomaly and latitude from 105 to 91; but the magnitude of change for the other correlations was about four.



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Y-SCALE=1.00E+02 UNITS INCH.

Fig. 10. Free-air anomaly (Y-axis) vs. south latitude (X-axis) for Solomons region, 1964.

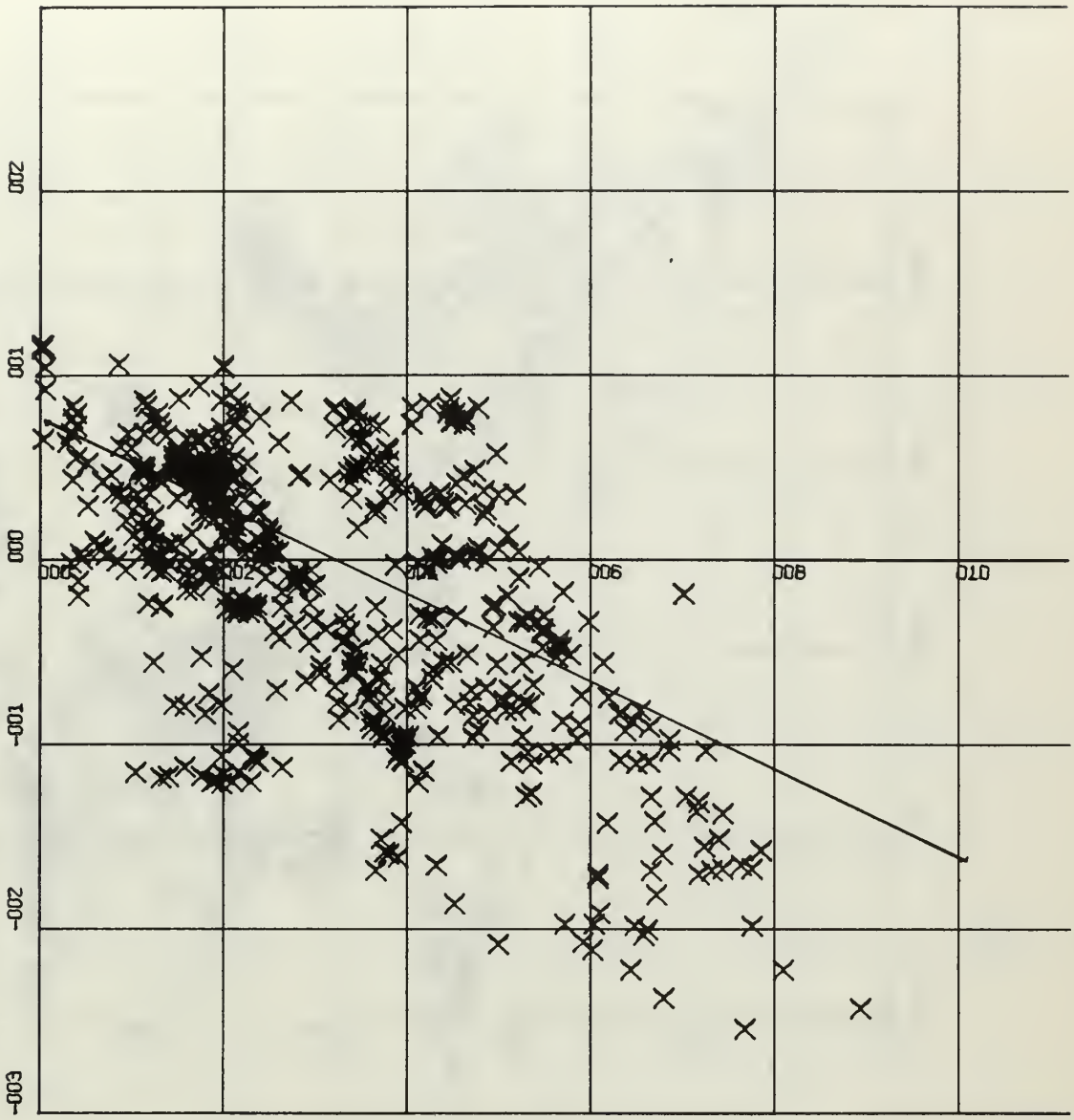

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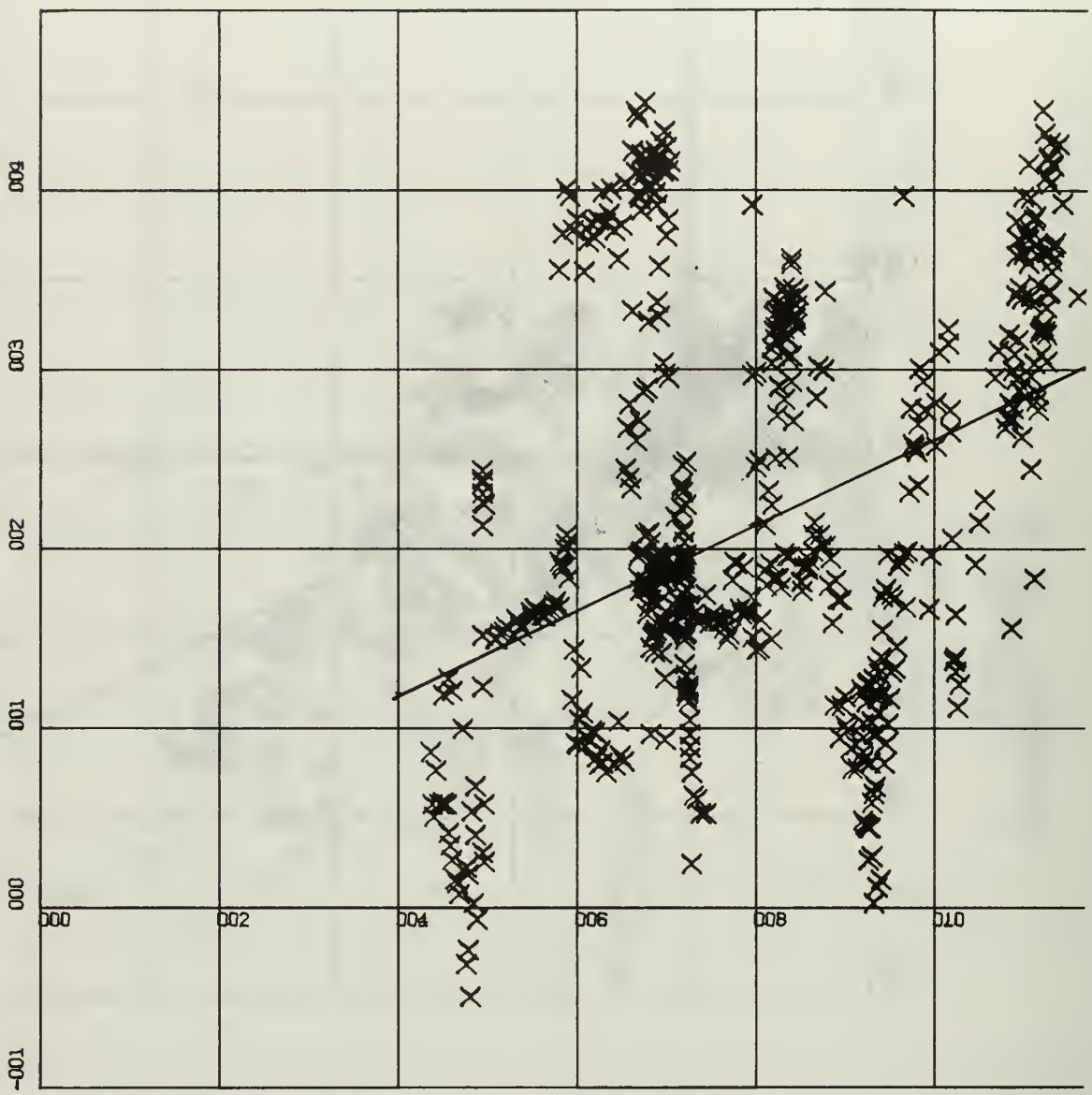
Fig. 11. Free-air anomaly(Y-axis) vs. depth in meters (X-axis) for Solomons region, 1964.



X-SCALE=2.00E+00 UNITS INCH.
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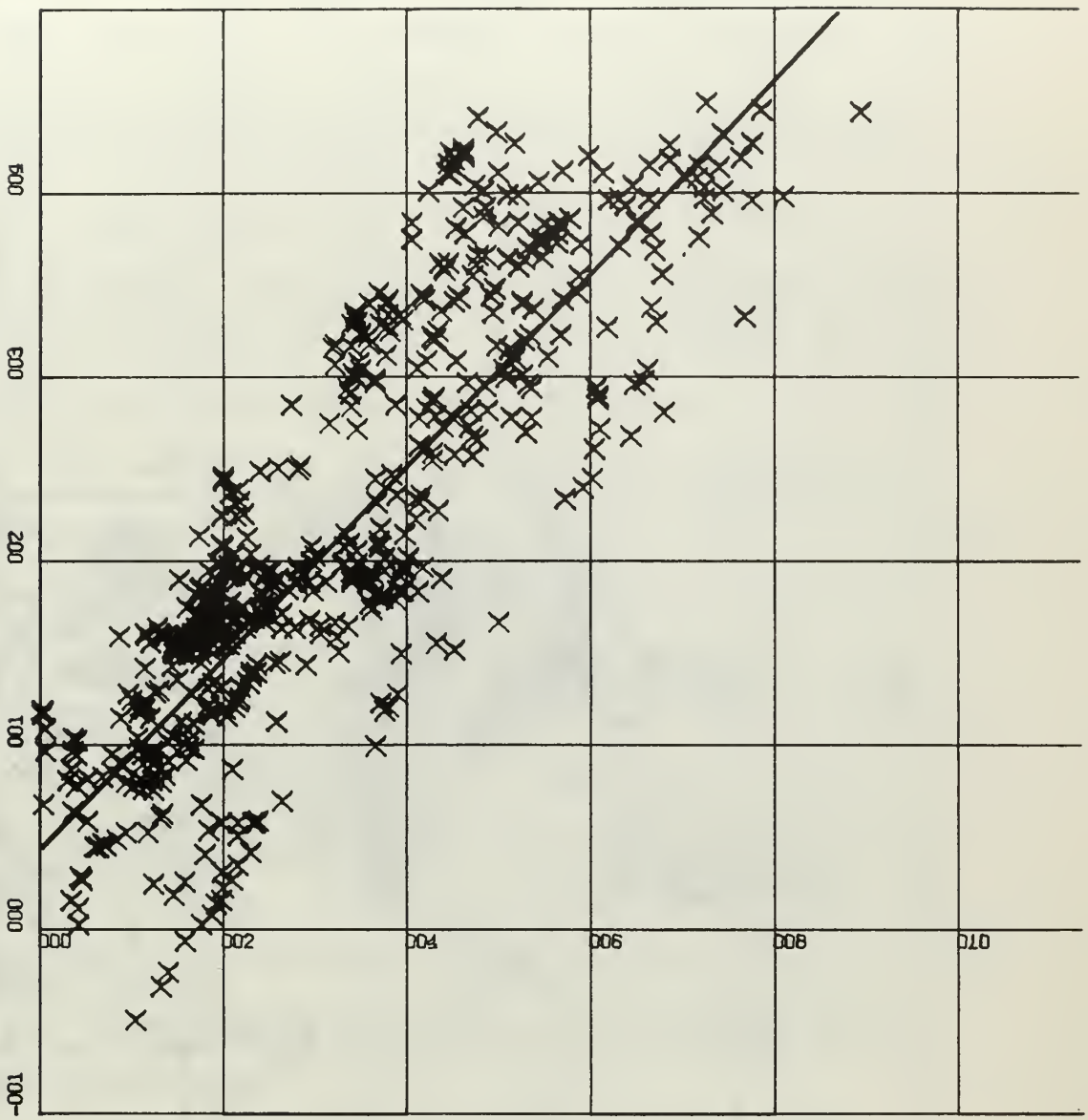
Fig. 12. Bouguer anomaly(Y-axis) vs. south latitude (X-axis) for Solomons region, 1964.



X-SCALE=2.00E+03 UNITS INCH.
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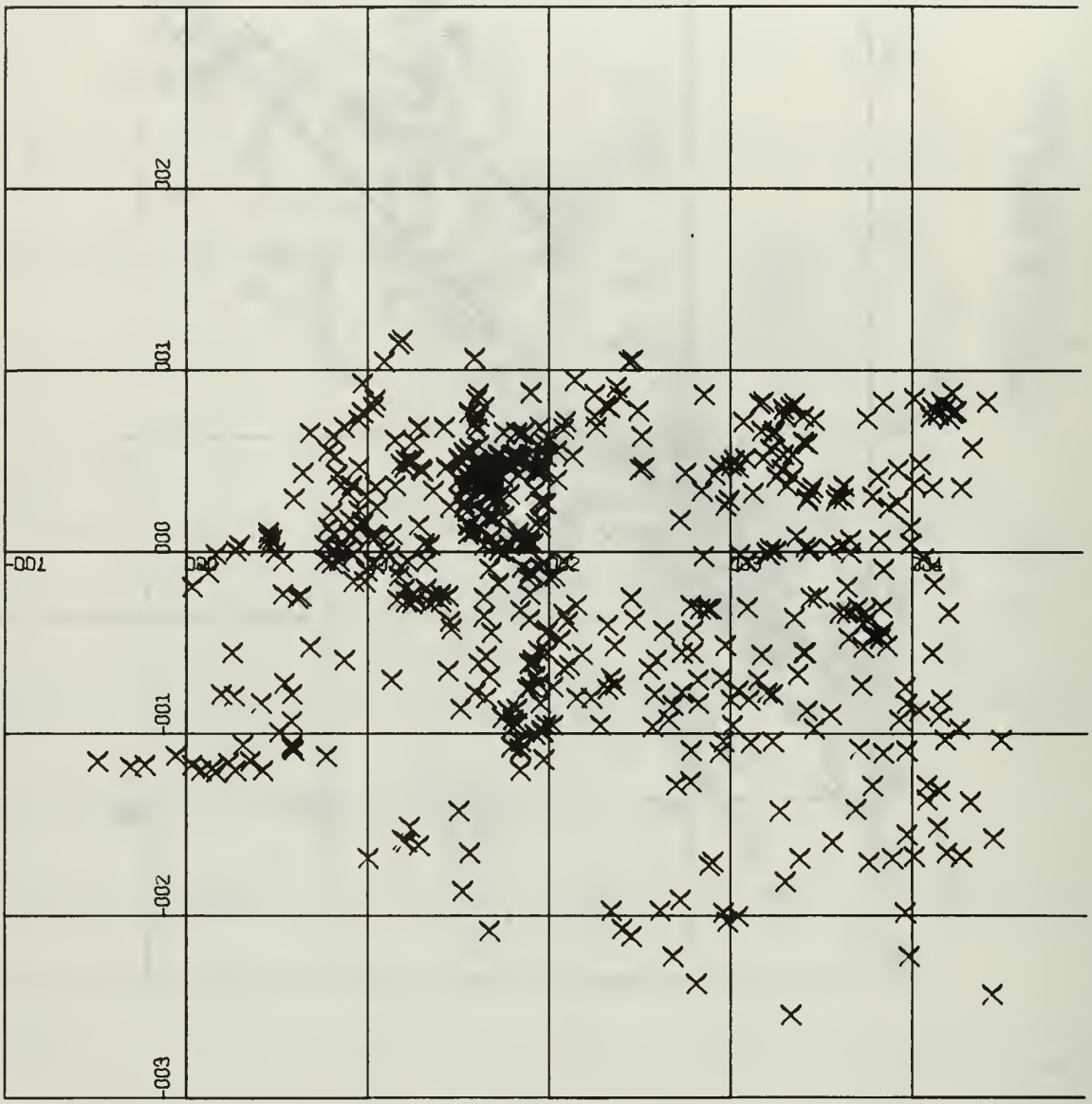
Fig. 13. Bouguer anomaly(Y-axis) vs. depth in meters (X-axis) for Solomons region, 1964.



X-SCALE=1.00E+02 UNITS INCH.
Y-SCALE=1.00E+02 UNITS INCH.

Fig. 14. Free-air anomaly(Y-axis) vs. Bouguer anomaly (X-axis) for Solomons regions, 1964.

CHAPTER IV

AREA OF DIFFERENCES BETWEEN WANDANK AND DAMPIER DATA

Data obtained by the DAMPIER and the WANDANK was not in complete agreement. WANDANK data collected on the 9th, 10th, and 11th of November resulted in anomalies which exceeded those computed from DAMPIER data by twenty to thirty milligals. Data from the WANDANK cruise during the three days following resulted in anomalies which were considered to be about 150 milligals too large. It was this latter time period, 12 - 14 November, which was examined more closely in an attempt to explain the data differences.

1. GEOGRAPHICAL AREA AND MAGNITUDE OF DIFFERENCES

The region where the greatest differences in data existed is shown in Figure 15. In this area there were six crossings of WANDANK and DAMPIER tracks and in sections where crossings did not occur, the tracks were separated by about 120 miles. The differences in anomalies in the sections of crossings were from 12 to 168 milligals for the free-air anomalies and from 22 to 132 milligals for the Bouguer anomalies.

2. POSSIBLE SOURCES OF ERROR IN WANDANK DATA

In order to determine the cause of such differences, it was assumed that the WANDANK data was in error; and an attempt was made to find where errors did or could exist and to correct, if possible, any errors found.

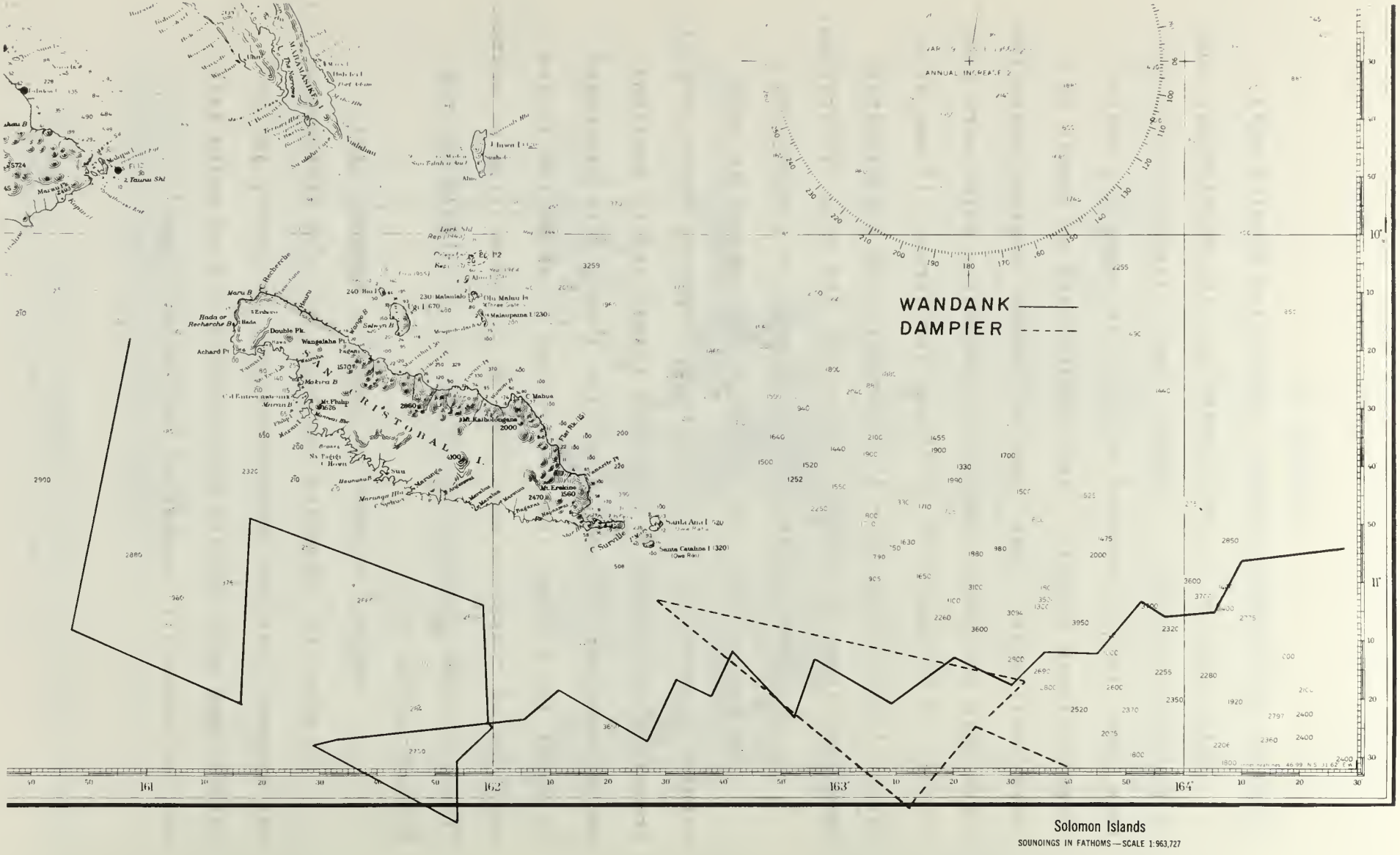


Fig. 15 WANDANK and DAMPIER tracks in area of anomaly differences.

Navigational Error

Navigation at sea, particularly by celestial means, is not as accurate as desired. The accuracy of such fixes was discussed in Chapter II. As an example of the effect that navigation can have on gravity anomalies, at a latitude of thirty degrees, a one mile error in position yields a one milligal error in an anomaly (Anderson, 1962). The entire track of the WANDANK was not replotted, because not all information required to do so was available; but the positions of each gravity station as given in the computer program were compared with those plotted on the corrected original navigational charts. Some positions were found to differ by as much as five miles. This comparison was made not only in the area under close scrutiny, but along the entire track. The original track had been corrected at some time after the cruise (all tracks shown are corrected), and it appeared that most of the differences existed because the computer positions were recorded before the track modifications were made. In one instance, the position as used by the computer was in error by one degree of latitude; this was most likely due to a recording error.

In this area of great anomaly differences, the WANDANK was forced to follow a modified track because of sea conditions. An examination of the chart used for plotting the ship's position as determined by celestial means revealed that the ship was constantly being set to the south. This

was to be expected as a result of the swell running from the northeast. It did not appear that the ship's navigator made a complete track adjustment for this set, but merely plotted each celestial position and projected the ship's travel ahead from this position without anticipating any future set. No track adjustment was made based on this conjecture, however. Substantiating this belief was the fact that at one crossing of its own track by WANDANK in this area, successive depth measurements were not in agreement.

Eötvös Correction

Equation (1) served as the basis for making the Eötvös correction to the observed gravity. This was recognized as possibly the greatest source of error because of the effect of ship's speed, and the manner in which the east-west component of speed as determined by Rose (personal communication) was examined. Instead of calculating this component at each gravity station from ship's heading and speed, it was "picked" from the chart directly. An examination of equation (1) revealed that at the equator, with the ship on an easterly or westerly heading, a one knot error in speed would result in an error in anomalies of about 7.5 milligals. At the suggestion of Rose, this east-west component was determined in a different manner. A separate computer program was written to compute the east-west speed component at each station by the solution of the equation:

$$(7) \quad S_{EW} = S \sin\alpha$$

where S_{EW} is the east-west component of speed, S the ship's speed, and α the ship's heading. This was first done only for the area in which the greatest differences occurred, but this procedure was later followed for all gravity stations. In the area under discussion, the difference between the two methods of determining this component ranged from the triangular method being 1.7 knots greater to 2.5 knots less than the "pick" method. The majority of differences were $\pm$ .1 to .3 knots.

When the new east-west components of speed and the corrected navigational positions were added to the main gravity program, the free-air anomalies at fifteen gravity stations changed by three to twelve milligals with the average change being an increase of seven milligals. Two stations had more negative free-air anomalies by 68 and 83 milligals; twelve stations had less negative anomalies by fifteen to twenty milligals with the average change being about seventeen milligals. The remainder of the 104 gravity stations in this region showed no change or a change of one milligal. Of the two biggest changes, one was due to both navigational and Eötvös correction changes, and the other was due to a change in the Eötvös correction alone. The remainder of the anomalies that changed appreciably had only slight navigational changes; most of the change was due to changes in the Eötvös correction. Table I shows some of the changes

which resulted.

The Appendix gives the results of the data reduction for the entire Solomons region, with those anomalies and navigational positions found to be in error, corrected.

Bathymetry

Erroneous bathymetry will not produce errors in the free-air anomaly, but it could introduce errors in the Bouguer anomaly as seen in equation (6) where d represents depth. There was one WANDANK track crossing where the bathymetry on successive crossings did not agree (see page 44). When steaming in a westerly direction on the 13th of November, the ship measured a depth of 5956 meters at 0730 and a depth of 5377 meters at 0745; the ship passed through the "crossing position" at 0738 in the morning. When passing through the same position at 1600 of the same day, a depth of 4400 meters was observed. This fact, along with the southerly set during the period of 12-14 November, strongly indicated the need for some track adjustment in this area. The bathymetry information obtained by the WANDANK was found to be in general agreement with all the bathymetry of the area which had been made available to the Hawaii Institute of Geophysics (personal communication with Rose). No gravity readings were obtained at either time of crossing on the 13th, so no conclusions were drawn about the accuracy of the point of crossing.

TABLE I

ANOMALIES BEFORE AND AFTER NEW EÖTVÖS CORRECTION

AND NAVIGATIONAL MODIFICATIONS MADE

Latitude	Longitude	Free-Air Anomaly			Bouguer Anomaly		
		Old	New	New-Old	Old	New	New-Old
10-56.2S	164-11.8E	-66	-69	-3	297	295	-2
10-56.9S	164- 9.9E	-60	-56	4	313	317	4
10-58.9S	164- 8.7E	-59	-55	4	336	340	4
11- 0.9S	164- 7.5E	-50	-47	3	362	365	3
11- 3.0S	164- 6.3E	-41	-37	4	372	375	3
11- 4.7S	164- 5.1E	-36	-33	3	357	360	3
11- 5.3S	163-59.1E	-54	-55	-1	341	341	0
11- 3.9S	163-53.1E	-63	-52	11	361	373	12
11- 5.7S	163-50.9E	-58	-46	12	367	378	11
11- 7.7S	163-48.7E	-54	-43	11	372	384	12
11- 9.2S	163-47.2E	-41	-30	11	358	370	12
11-10.3S	163-45.0E	-36	-24	12	336	348	12
11-20.8S	162-52.7E	-148	-141	7	362	369	7
11-22.2S	162-51.8E	-115	-108	7	365	371	6
10-48.5S	161-17.5E	-16	-84	-68	336	268	-68
11-20.3S	161-14.2E	-15	2	17	337	355	18
11-18.6S	161-11.7E	-15	2	17	326	344	18
11-17.7S	161-10.1E	-16	1	17	325	343	18
11-16.8S	161- 8.5E	-19	-1	18	287	305	18
11-15.9S	161- 6.9E	-17	0	17	302	320	18
11-15.0S	161- 5.2E	-15	2	17	304	322	18
11-13.3S	161- 1.1E	-16	1	17	307	325	18
11-12.4S	160-58.5E	-23	-5	18	290	309	19
11-11.5S	160-56.0E	-19	-1	18	303	321	18
11-10.6S	160-53.7E	-19	-31	-12	299	287	-12
11- 9.8S	160-51.4E	-17	-29	-12	290	278	-12
11- 8.9S	160-49.1E	-18	-31	-13	295	283	-12
11- 8.0S	160-46.8E	-37	-120	-83	268	184	-84
11- 6.0S	160-47.9E	-26	-25	1	243	245	2

Vertical Accelerations

Vertical accelerations of the measuring platform in excess of ± 50 gals, have been found to cause erroneous gravity readings. In this area, because of weather, the ship was forced to alter its proposed track in order to obtain gravity readings. Prior to 1965, when the stabilized platform was introduced by LaCoste and Romberg, their gravity meters were designed and adjusted to operate at horizontal and vertical accelerations of only ± 50 gals. According to LaCoste (1967), the horizontal acceleration limit of ± 50 gals was made in order to retain adequate accuracy in the analog computer for the Browne correction; it was not expected that the vertical accelerations would greatly exceed the horizontal accelerations. The meters could withstand vertical accelerations greater than this limit, but their linearity was not sufficiently well adjusted to make the errors small at accelerations greater than the ± 50 gals limit. Data was collected at such excess accelerations, and it is now possible to compute corrections to such data. In tests by Allan et al. (1962) on a 3000 ton ship, the LaCoste and Romberg meter S9 gave errors of about ± two milligals in calm seas and ten to twenty-five milligals when the ship headed into a moderate sea. The errors of ± two milligals were not surprising. Dehlinger and Yungul (1962) reported errors as high as forty-nine milligals using the same meter on a 250 ton ship. Dehlinger worked out an empirical

correction based on horizontal acceleration that reduced vertical acceleration errors to about ± ten milligals. Harrison and LaCoste (1968) determined that large vertical accelerations accounted for most of the errors in the LaCoste and Romberg meters. Harrison, by applying corrections that he had obtained from a 1963 test with meter S9, reduced errors in data obtained from an experimental LaCoste and Romberg stabilized platform gravity meter in 1964 from a mean error of 8.4 milligals and rms errors that ranged from five to twenty milligals to a mean error of 1.1 milligals and rms error of 3.6 milligals. LaCoste made similiar corrections to data from another meter with improvement; these corrections can be applied to other data using information available from LaCoste and pertaining to the meter which collected the data.

Rose (1967) applied vertical acceleration error corrections to the data obtained using the S9 on the DAMPIER. He noted that the corrections were generally less than + twenty milligals with some corrections of + fifty milligals and an occasional correction in excess of + 100 milligals. Vertical acceleration error corrections have not been made to the WANDANK data. It was planned to determine some of these corrections for the WANDANK data in hopes of finding some of the 150 milligal difference. This was not done, but an examination of the records in this area did not indicate that large vertical accelerations were present. The vertical

acceleration error, nevertheless, can be determined from:

$$(8)\quad \Delta g = a(R_o - R)[A_V]^2$$

$$(9)\quad A_V = K[B_x]/T$$

where Δg is the vertical error in milligals; a is a constant for the meter in question as are R_o, and K; T is the period of beam motion in seconds; B_x is the division of beam motion where 100 divisions is maximum motion; A_V is the vertical acceleration in gals and R is the average position of the beam (correspondence with LaCoste).

3. CORRELATION OF WANDANK ANOMALIES WITH DEPTH AND LATITUDE

Figures 16 through 19 are identical in format with Figures 10 through 13 (pp. 36 - 39). The dotted line represents the least squares fit to the overall data. The gap that appears in Figures 16 and 18 for anomalies between 10 and 11 degrees exists because of the discontinuous collection of data in this area due to the weather. The least squares fit of Figure 16 shows a trend of decreasing free-air anomaly with increasing latitude. The scatter in this figure is not as great as that of Figure 10 (p. 36) which shows the correlation for the overall data. The linear trend of decreasing free-air anomaly with increasing depth is very evident in Figure 17; the trend is much more pronounced than that shown in Figure 11 (p. 37). A very marked increase in Bouguer anomaly with increasing latitude is shown in Figure 18. The random

scatter of Figure 12 (p. 38) is not present in this presentation. Figure 19 shows a stronger linear trend of increasing Bouguer anomaly with increasing depth than does Figure 13 (p. 39).

The values for the goodness of fit parameter (the standard deviation) in this area where large differences exist between 1964 and 1965 data were determined and compared with those obtained for the overall 1964 data. There were 104 gravity stations established in this area representing about 18 per cent of all the data collected by WANDANK. The goodness of fit was much better for this region than for the overall data. For the overall data, the values ranged from 105.2 to 62.2. In this area, the range was from 48.5 to 34.0. Table II shows the values for the overall area and for this particular area.

TABLE II

GOODNESS OF FIT PARAMETER COMPARISON

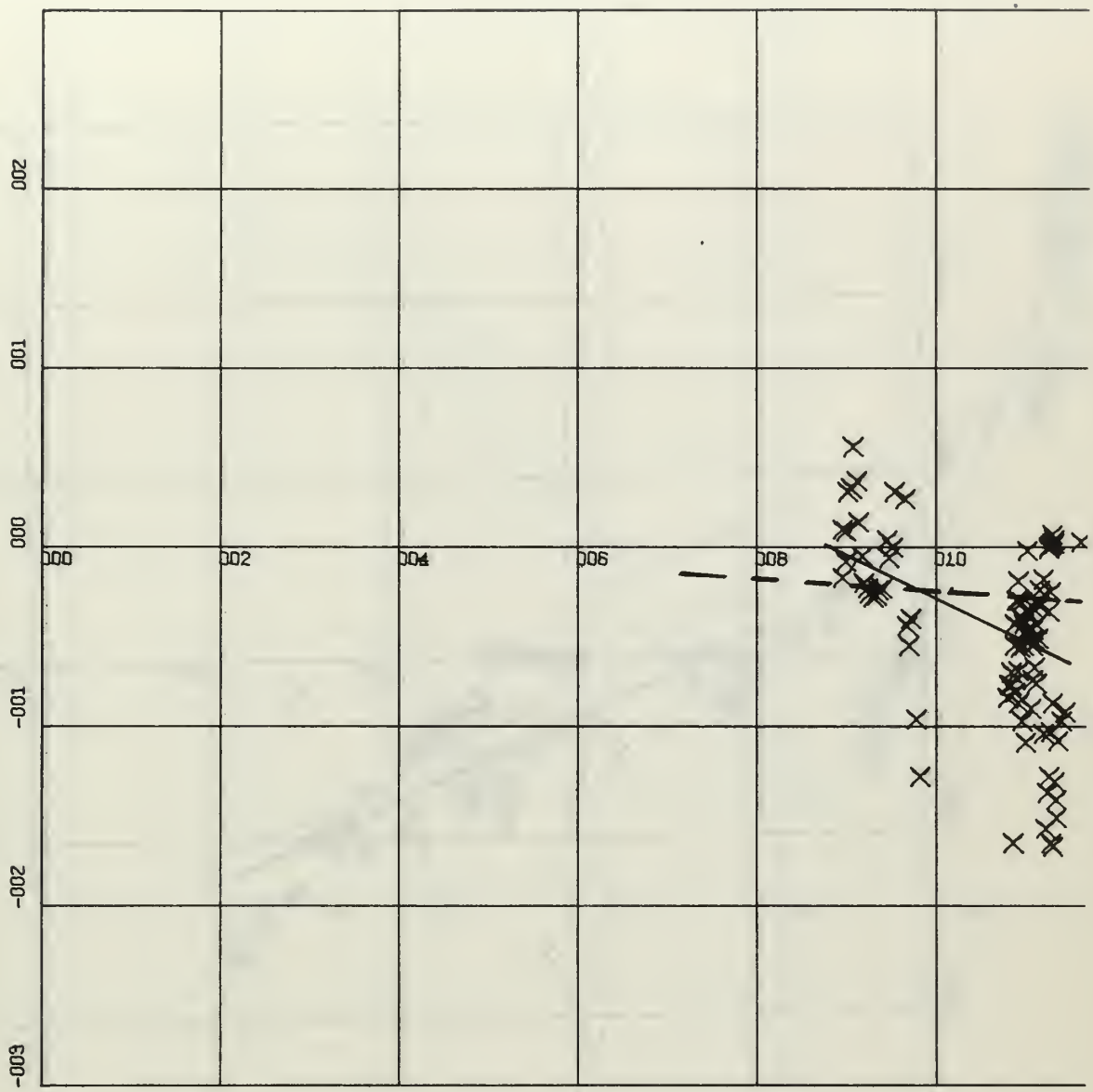
	Overall	Area of Differences
Free-air Anomaly		
vs. Latitude	74.97592	45.41911
vs. Depth	62.25532	33.98317
Bouguer Anomaly		
vs. Latitude	105.17838	48.47650
vs. Depth	62.47371	34.17099

Figures 20 and 21 (pp.57-58) show the Hollerith field printout for part of this difference area. In general, the Bouguer anomaly decreased with decreasing depth and the free-air anomaly became less negative and even positive with this

depth change. The data plotted in Figure 21 beyond 1200 on the 14th was outside the region under consideration, but prior to 1200, the data presented showed these trends better than did that of Figure 20. The trends displayed are the same as those of Figures 5 and 6 (pp.30 -31) which presented data representative of the entire cruise. They do differ from the trends of Figure 7 (p.32) which showed a nearly constant value for the Bouguer anomaly when depth was increasing as well as decreasing.

4. CROSSINGS OF WANDANK AND DAMPIER TRACKS

The Hawaii Institute of Geophysics investigators felt that the WANDANK data in this area produced anomalies which were too large by about 150 milligals. Figure 22, which shows the only section in which DAMPIER and WANDANK tracks came within thirty miles of each other in this area, shows one reason for reaching this conclusion. At each data point shown in the figure, the negative number represents the free-air anomaly, and the positive number represents the Bouguer anomaly. In the section to the northeast, data points within one and one-half miles of each other show a difference of twelve milligals in the free-air anomaly and thirty-one milligals in the Bouguer anomaly. The next data points plotted for each ship are three and one-half miles apart and show a difference of seventy-three milligals in the free-air anomaly and twenty-two milligals in the Bouguer anomaly. These differences are not as upsetting as data points further



X-SCALE=2.00E+00 UNITS INCH.
Y-SCALE=1.00E+02 UNITS INCH.

Fig. 16. Free-air anomaly(Y-axis) vs. south latitude(X-axis) for area of differences in Solomons, 1964.

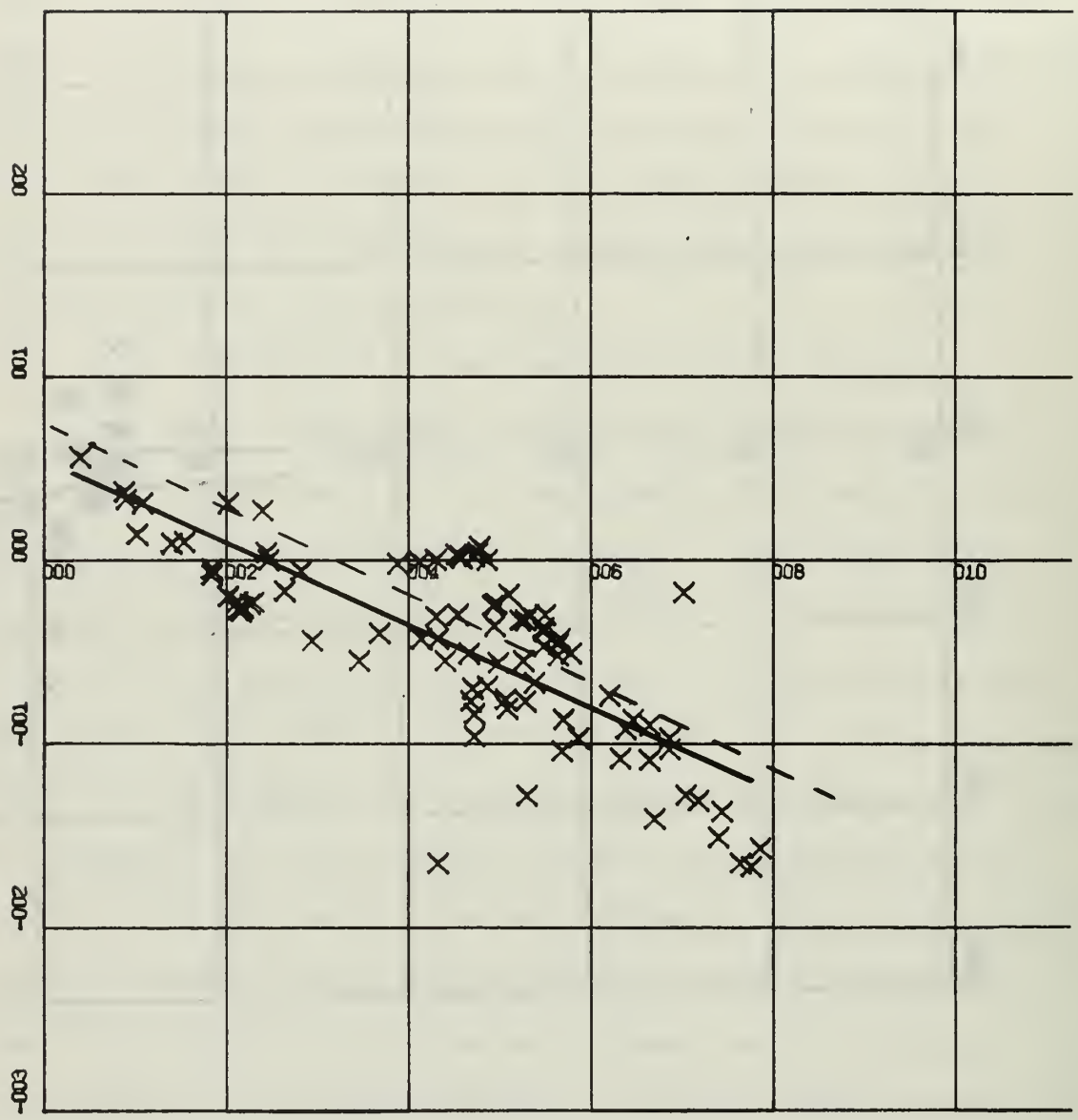


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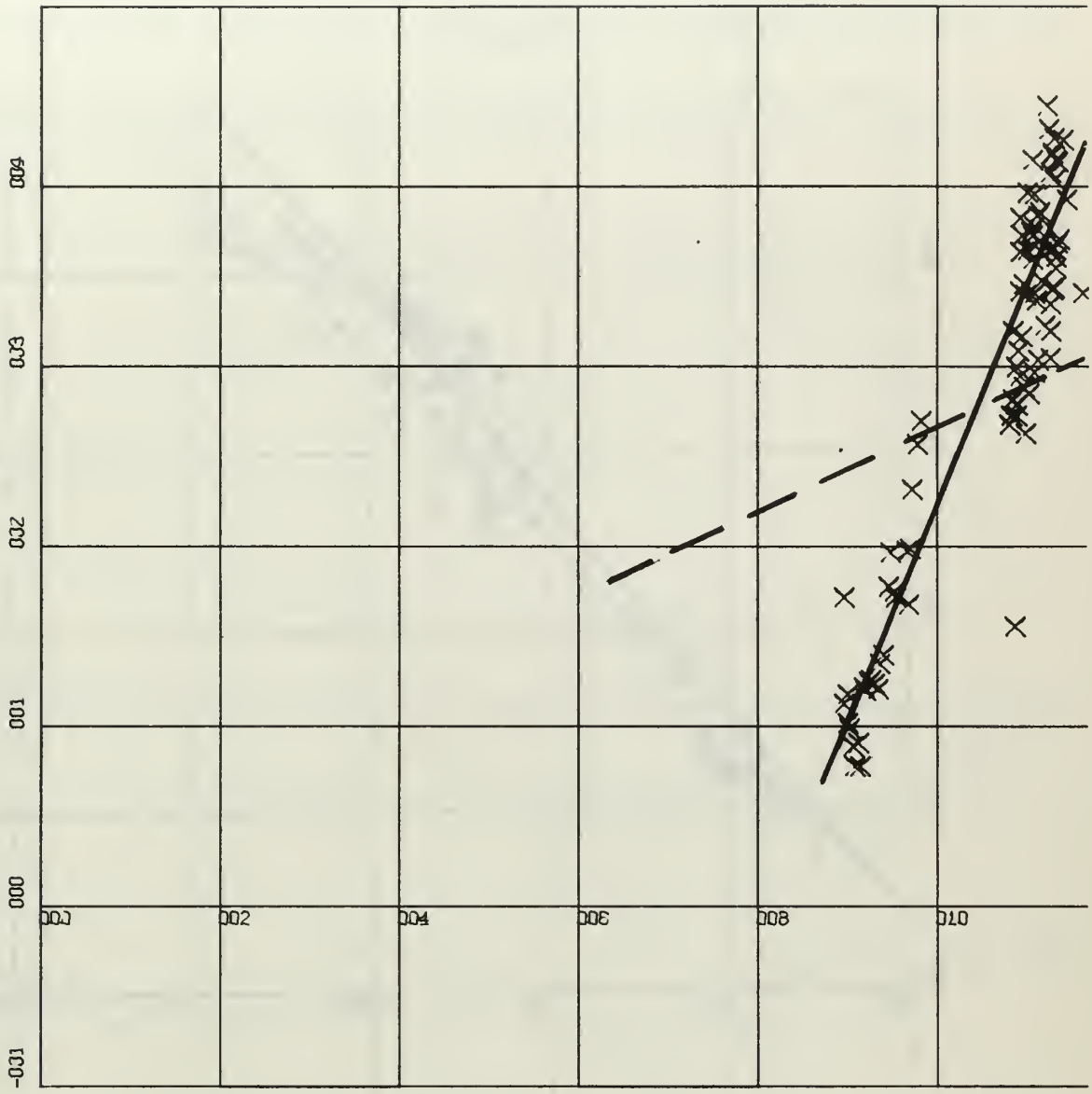
Fig. 17. Free-air anomaly(Y-axis) vs. depth in meters(X-axis) for area of differences in Solomons, 1964.



X-SCALE=2.00E+00 UNITS INCH.
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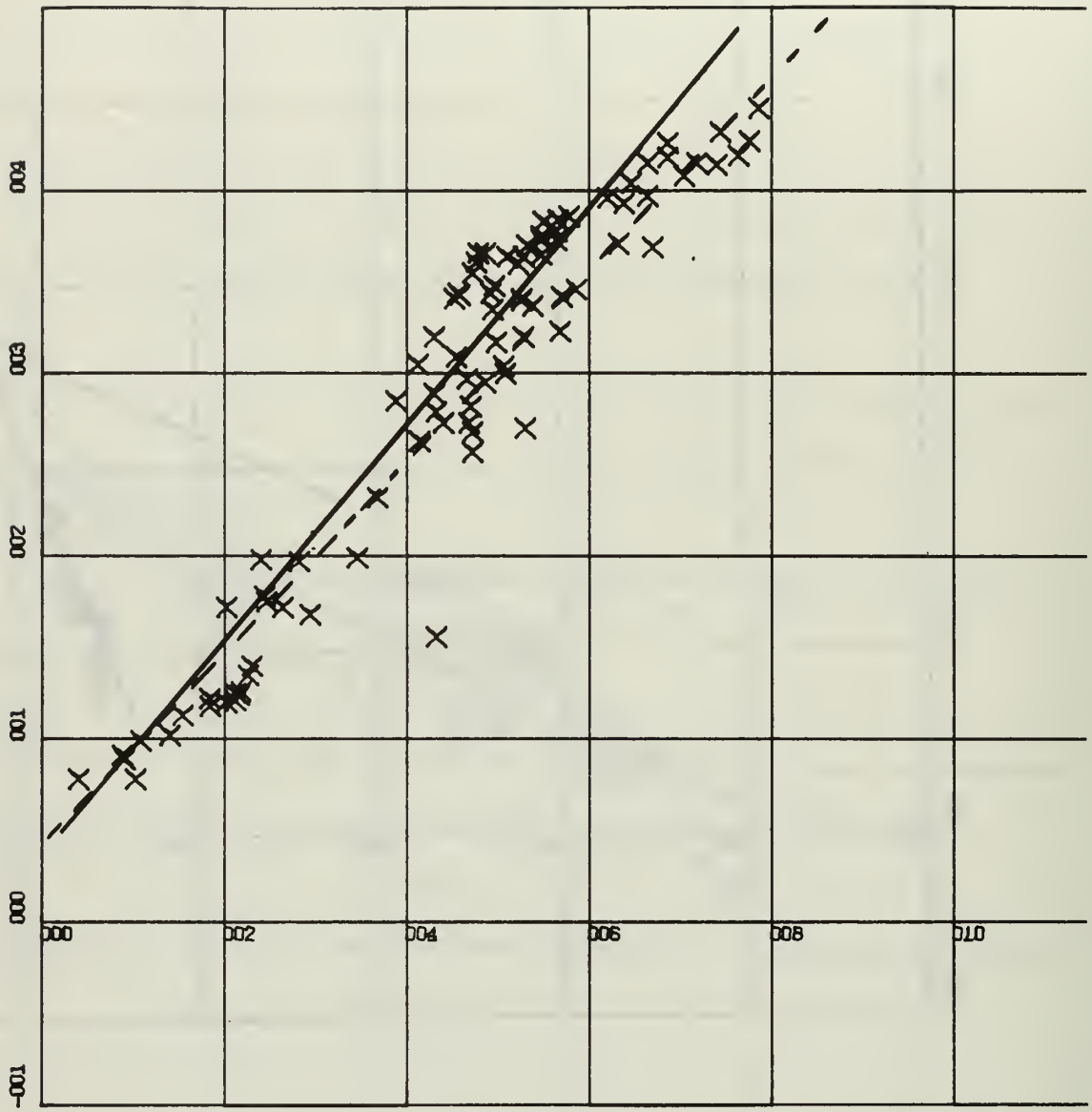
Fig. 18. Bouguer anomaly(Y-axis) vs. south latitude(X-axis) for area of differences in Solomons, 1964.



X-SCALE=2.00E+03 UNITS INCH.
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Fig. 19. Bouguer anomaly(Y-axis) vs. depth in meters(X-axis) for area of differences in Solomons, 1964)

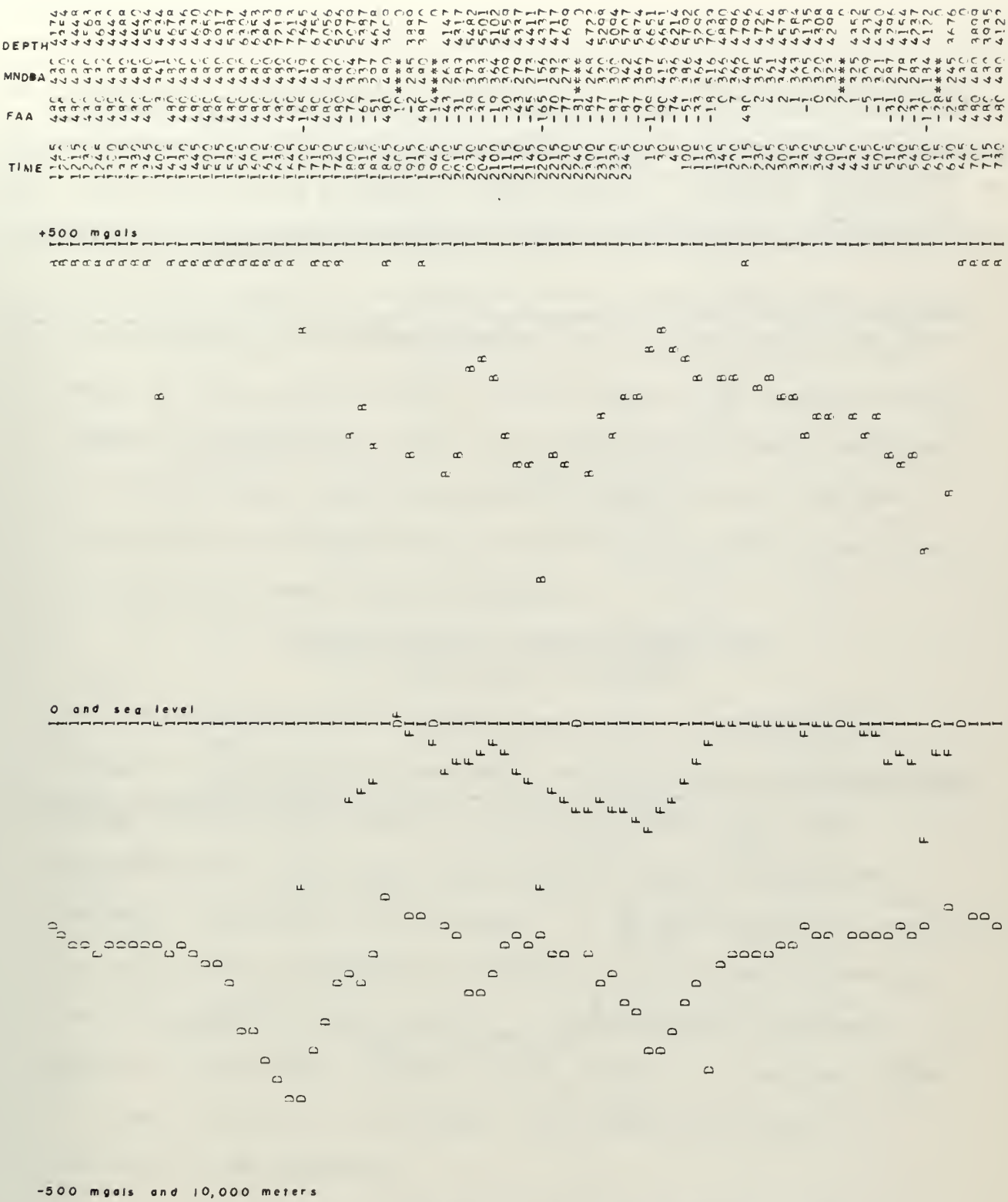

Fig. 20. Free-air anomaly(F), Bouguer anomaly(B), and depth(D) on 13-14 Nov 1964.

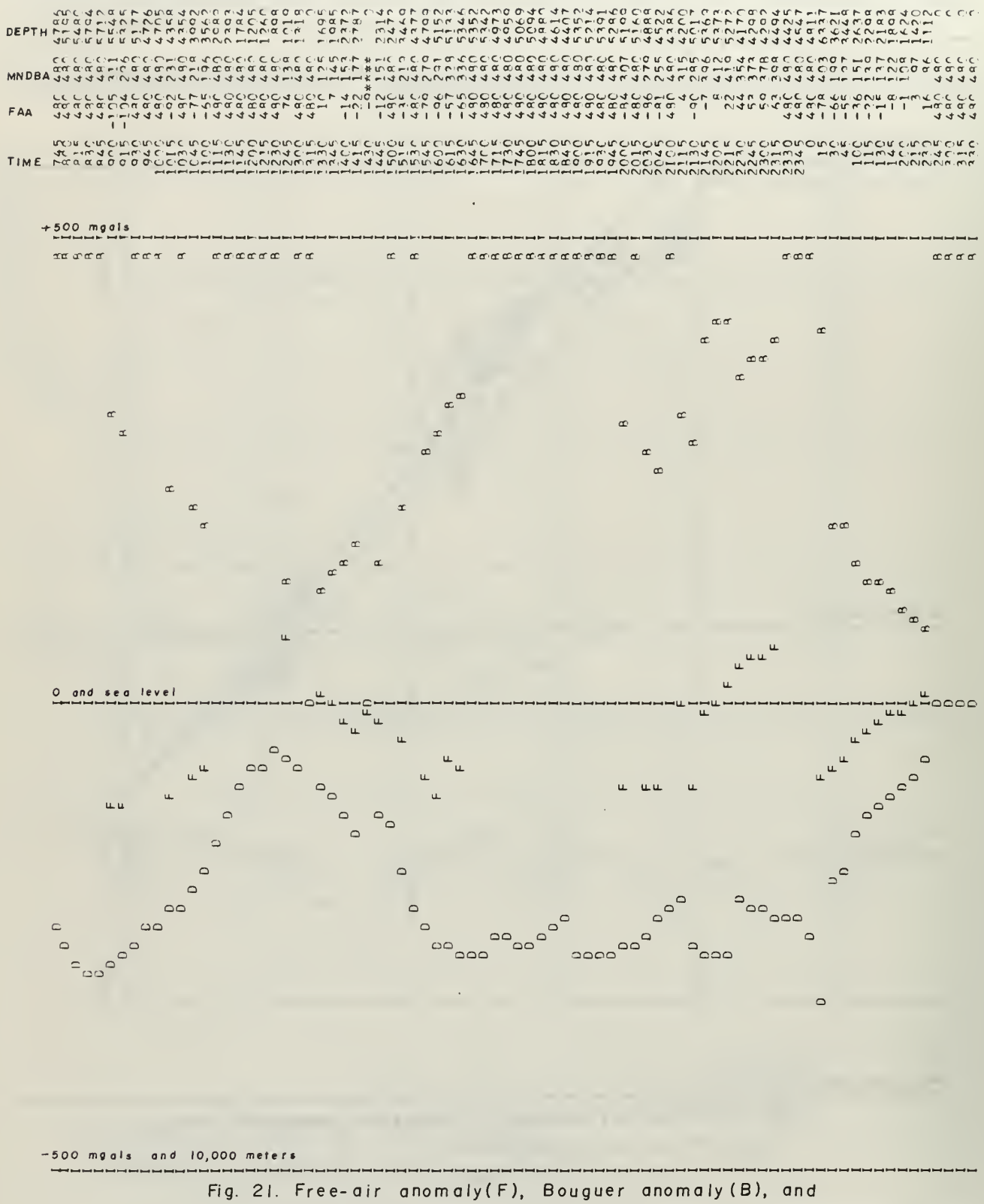

Fig. 21. Free-air anomaly(F), Bouguer anomaly(B), and depth(D) on 14-15 Nov 1964.

to the west where within three miles of each other, data points reveal the WANDANK free-air anomaly to be high by fifty-three milligals and the Bouguer anomaly to be 132 milligals higher than the DAMPIER anomaly. Unfortunately, Bouguer anomalies were not available for data points closer together, but the free-air anomalies for DAMPIER much closer than three and one-half miles of WANDANK show that WANDANK anomalies were high by 120, 143, 148, and 168 milligals. The anomaly values shown for WANDANK are those obtained before changes were made in navigational position and Eötvös correction. The new values for the data points discussed above differ from those plotted by at most three milligals.

5. CORRELATION OF DAMPIER ANOMALIES WITH DEPTH AND LATITUDE

For comparison, a least squares fit to the gravity anomalies and latitude and depth was determined for the fifty-seven DAMPIER data points in this area for which both anomalies and depth were available. Table III shows the standard deviations for a linear fit to the anomalies obtained in this area by WANDANK and DAMPIER. The large differences in the standard deviation for the anomalies of the two ships in this area may be directly related to the fact that 104 data points were available for WANDANK and only 57 points for the DAMPIER.

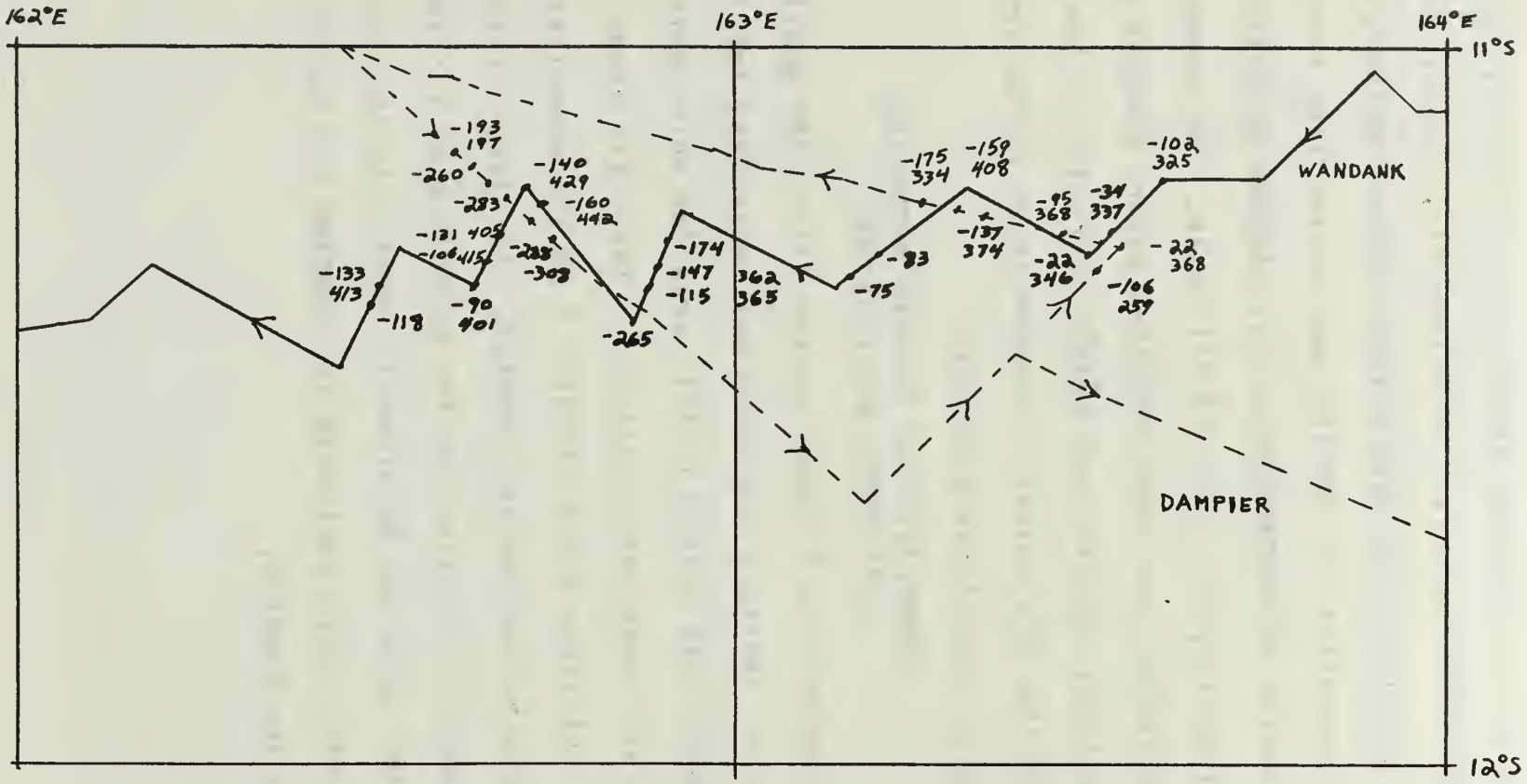

Fig. 22. WANDANK and DAMPIER tracks in area of anomaly differences.

TABLE III

STANDARD DEVIATIONS FOR WANDANK AND DAMPIER

ANOMALIES IN DIFFERENCE AREA

	WANDANK	DAMPIER
Free-air Anomaly		
vs. Latitude	45.419119	75.376572
vs. Depth	33.983170	52.614212
Bouguer Anomaly		
vs. Latitude	48.476501	67.432800
vs. Depth	34.170990	57.533295

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

It was hoped that an examination of the gravity anomalies resulting from data collected by the WANDANK would either reveal a source or sources of error in the data or show conclusively that no errors existed. It did neither. A change in procedure for calculating the east-west component of speed for use in the Eötvös correction, and the correction of navigational positions of the gravity stations as they appeared in the gravity data reduction computer program produced some marked changes in the anomalies, but not in the area where these anomalies appeared to be high by about 150 milligals. The exact positions of each gravity station in this area of differences are in doubt because of the uncertainty of how the problem of the set of the ship was incorporated in the final navigational track constructed, and because of differences in measured depth when the WANDANK crossed its own track in this area. Although the question of what magnitude of error could be attributed to vertical accelerations has not been quantitatively answered, it does appear that they are not the main source of the differences. Bathymetry was eliminated as a source of large error as this is in general agreement with other data collected in the area.

Conclusions

After considering the possible errors in WANDANK's

navigation, the sea conditions under which the ship was collecting data, and the experience gained on the WANDANK cruise that was available when collecting data aboard the DAMPIER, it was agreed that the most suspect anomalies were those resulting from WANDANK data. The exact cause of the anomaly differences was not found.

Several approaches are left which might lead to some improvement in the anomalies. After a detailed bathymetry chart of the area has been published, it might be possible to adjust the WANDANK track and recompute the anomalies. Such an approach must consider the fact that much of the data used in producing such a chart will be that collected by WANDANK. Coupled with a quantitative examination of the gravity meter records with respect to vertical accelerations, this should produce some improvement in the WANDANK anomalies. Another survey in this area would certainly be justified to settle the question of anomaly differences.

The remainder of the WANDANK data has been corrected. It is in general agreement with DAMPIER data, except for two relatively small areas where a twenty-five to thirty milligal difference exists, and can be used with some confidence as to its accuracy. In the area south of San Cristobal Island, the procedure used by Rose of subtracting 150 milligals from the WANDANK anomalies is recommended until resurvey of this area is accomplished.

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APPENDIX

SEA GRAVITY REDUCTIONS FOR USS JAMDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1964

CARD	MO	DAY	HOUR	LATITUDE DEG	MIN		LONGITUDE DEG	MIN		OBS G	THEOR G	FAA MGAL	DEPTH METRS	BOUGUER ANOMALIES IN MGAL FOR 0.05 GM/CC STEPS FROM 2.3 TO 3.0 2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	MEAN
495	NOV	5	1400	0	0.0		0	0.0					0																
496	NOV	5	1400	0	0.0		0	0.0					0																
497	NOV	5	1415	0	0.0		0	0.0					2354																
498	NOV	5	1430	0	0.0		0	0.0					2541																
499	NOV	5	1445	0	0.0		0	0.0					2601																
500	NOV	5	1500	0	48.0	S	153	7.0	E				2821																
501	NOV	5	1515	0	0.0		0	0.0					2083																
502	NOV	5	1530	0	0.0		0	0.0					2830																
503	NOV	5	1545	0	0.0		0	0.0					2821																
504	NOV	5	1600	0	0.0		0	0.0					2663																
505	NOV	5	1615	0	0.0		0	0.0					2607																
506	NOV	5	1630	0	0.0		0	0.0					2706																
507	NOV	5	1645	0	0.0		0	0.0					2725																
508	NOV	5	1700	0	0.0		0	0.0					2819																
509	NOV	5	1715	0	0.0		0	0.0					3157																
510	NOV	5	1730	0	0.0		0	0.0					3477																
511	NOV	5	1745	0	0.0		0	0.0					3533																
512	NOV	5	1800	0	0.0		0	0.0					3261																
513	NOV	5	1815	0	0.0		0	0.0					3025																
514	NOV	5	1830	4	25.6	S	153	14.5	E	977967	978089	-112	2650	27	33	38	44	49	55	60	66	71	77	82	88	93	99	104	77
515	NOV	5	1845	4	29.3	S	153	14.2	E	977947	978180	-133		**********															
516	NOV	5	1900	4	31.0	S	153	13.7	E	977922	978181	-158	3762	40	48	56	63	71	79	87	95	103	111	118	126	134	142	149	119
517	NOV	5	1915	4	33.8	S	153	13.3	E	977933	978933	-161	3914	45	53	61	69	78	86	94	102	110	118	126	134	142	151	159	128
518	NOV	5	1930	4	36.6	S	153	12.3	E	977933	978982	-150	3858	41	49	57	65	73	80	88	96	104	112	120	128	136	144	152	121
519	NOV	5	1945	4	39.4	S	153	12.1	E				3685																
520	NOV	5	2000	4	42.3	S	153	11.3	E				3714																
521	NOV	5	2015	4	44.2	S	153	9.5	E	977909	978984	-174	3663	18	26	33	41	49	56	64	71	79	87	94	102	109	117	125	94
522	NOV	5	2030	4	44.1	S	153	7.8	E	977962	978985	-122	2913	-15	-11	-7	-3	0	5	9	13	17	21	25	30	34	38	42	17
523	NOV	5	2045	4	49.0	S	153	6.2	E	978000	978985	-84	1475	-6	-3	0	2	5	8	11	14	17	20	23	26	30	33	36	13
524	NOV	5	2100	4	50.0	S	153	4.3	E	978007	978986	-78	1846	10	23	27	31	34	38	42	46	50	53	57	61	65	69	73	48
525	NOV	5	2115	4	52.0	S	153	2.7	E	977996	978986	-89	1818	6	10	14	18	21	25	29	33	36	40	44	48	51	55	59	35
526	NOV	5	2130	0	0.0		0	0.0					1512																
527	NOV	5	2145	0	0.0		0	0.0					1420																
528	NOV	5	2200	0	0.0		0	0.0					1141																
529	NOV	5	2215	0	0.0		0	0.0					865																
530	NOV	5	2230	0	0.0		0	0.0					772																
531	NOV	5	2245	0	0.0		0	0.0					1224																
532	NOV	5	2300	0	0.0		0	0.0					0																

SEA - SURFACE TEMPERATURE AND HEAT CONTENT FOR THE NEW CALEDONIA ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1966

CARD	MO	DAY	HOUR	LATITUDE DEG	LATITUDE MIN	LONGITUDE DEG	LONGITUDE MIN	DBS #	THERM #	DEPTH	SIGMA-T ANOMALIES IN VOAL FOR 0.05 GM/CC STEPS FROM 0.250 TO 0.700 MEAN
533	NOV	5	2300	3	0.0	0	0.0			0	
534	NOV	5	2315	3	0.0	0	0.0			1497	
535	NOV	5	2330	4	53.0	S 153	49.0 E	378015	378036	-70	1771 23 26 30 34 37 41 45 48 52 56 59 63 67 70 74 59
536	NOV	5	2345	4	53.4	S 153	44.8 E	377955	378006	-130	1585 -46 -43 -40 -37 -33 -30 -27 -23 -20 -17 -14 -10 -7 -4 0 -24
537	NOV	6	0	4	51.0	S 153	46.8 E	377953	378004	-135	1771 -41 -38 -34 -30 -27 -23 -19 -16 -12 -8 -5 -1 2 5 9 -14
538	NOV	6	15	4	50.6	S 153	46.6 E	377944	378036	-130	**********
539	NOV	6	30	4	49.0	S 153	47.0 E	377952	378005	-133	1940 -77 -75 -72 -71 -69 -66 -64 -62 -60 -59 -56 -53 -51 -49 -47 -67
540	NOV	6	45	4	48.0	S 153	44.4 E	377955	378005	-135	1670 -59 -57 -54 -51 -49 -45 -43 -39 -36 -33 -30 -27 -24 -21 -19 -41
541	NOV	6	100	4	46.2	S 153	43.2 E	377949	378005	-136	1327 -66 -63 -60 -57 -55 -52 -49 -44 -44 -41 -38 -35 -33 -30 -27 -49
542	NOV	6	115	3	0.0	0	0.0			1401	
543	NOV	6	130	3	0.0	0	0.0			1403	
544	NOV	6	145	4	42.0	S 153	43.8 E	377945	378004	-138	1883 -33 -35 -31 -27 -23 -19 -15 -11 -7 -3 0 3 7 11 15 -8
545	NOV	6	200	4	40.0	S 153	33.0 E	377944	378003	-137	1939 -34 -30 -26 -22 -18 -14 -10 -6 -2 1 5 9 13 17 21 -2
546	NOV	6	215	4	38.0	S 153	38.0 E	377943	378003	-139	1906 -34 -30 -25 -21 -17 -13 -9 -5 0 3 7 11 15 19 23 -1
547	NOV	6	230	4	37.0	S 153	38.4 E	377944	378002	-137	2107 -26 -22 -17 -13 -9 -4 0 3 8 12 17 21 25 30 34 0
548	NOV	6	245	4	34.0	S 153	37.8 E	377943	378002	-133	2163 -18 -14 -10 -5 -1 3 7 12 16 21 25 29 34 38 43 10
549	NOV	6	300	4	34.2	S 153	37.2 E	377943	378002	-139	2201 -14 -11 -6 -2 2 7 12 16 21 26 31 35 40 45 50 24
550	NOV	6	315	4	33.0	S 153	36.0 E	377955	378001	-135	2248 -1 3 8 13 17 22 27 32 37 42 47 52 55 61 66 40
551	NOV	6	330	4	31.2	S 153	35.4 E	377953	378001	-137	2286 -1 3 8 13 18 23 28 33 38 43 48 53 57 62 67 41
552	NOV	6	345	4	30.0	S 153	34.8 E	377954	378001	-136	2348 -1 2 7 12 17 22 27 32 37 41 46 51 56 61 66 40
553	NOV	6	400	4	28.2	S 153	33.6 E	377954	378000	-134	2330 0 3 8 13 18 23 28 33 37 42 47 52 57 61 66 40
554	NOV	6	415	4	27.0	S 153	33.0 E	377955	378000	-134	**********
555	NOV	6	430	4	25.0	S 153	32.4 E	377941	378000	-117	2163 -3 1 5 10 14 19 23 28 32 37 41 44 51 55 59 34
556	NOV	6	445	4	24.0	S 153	31.2 E	377949	378000	-111	2163 3 7 12 16 21 25 30 34 39 43 48 52 57 61 64 40
557	NOV	6	500	4	22.2	S 153	30.6 E	377943	378000	-100	2107 10 14 19 23 28 32 36 41 45 49 54 58 63 67 71 44
558	NOV	6	515	4	21.0	S 153	30.0 E			2144	
559	NOV	6	515	4	21.0	S 153	30.0 E			2144	
560	NOV	6	530	3	0.0	0	0.0	378050	378040	41	569 71 72 73 74 75 76 78 79 80 81 82 84 85 86 87 72
561	NOV	6	545	3	0.0	0	0.0	378135	378040	86	332 104 105 105 106 107 107 108 109 110 110 111 112 112 113 114 104
562	NOV	6	600	3	0.0	0	0.0	378131	378040	82	404 103 104 105 106 107 107 108 109 110 111 112 112 113 114 115 103
563	NOV	6	615	3	0.0	0	0.0	378134	378040	85	448 108 109 110 111 112 113 114 115 116 117 118 119 119 120 121 109
564	NOV	6	630	3	0.0	0	0.0	378135	378040	77	**********
565	NOV	6	700	3	0.0	0	0.0			0	
566	NOV	6	715	3	0.0	0	0.0			0	
567	NOV	6	730	3	0.0	0	0.0			0	
568	NOV	6	745	3	0.0	0	0.0			0	
569	NOV	6	800	3	0.0	0	0.0			0	
570	NOV	6	815	3	0.0	0	0.0			0	

SEA GRAVITY REDUCTIONS FOR USS MARYSVILLE SOUTHERN ISLANDS, SOLOMON SEA, SURFACE SHIPBORNE THROUGH NOVEMBER 1944

CARD	MO	DAY	HOUR	LATITUDE DEG MIN		LONGITUDE DEG MIN		OBS G THEOR G MGAL		DEPTH METERS	BOUGUER ANOMALY MGAL		FREE AIR MGAL		OBS G/FC STEPS MGAL		FROM 2.670 MEAN	
609	NOV	6	1800	6	36.3	S	152	23.0	E									
610	NOV	6	1815	0	0.0		0	0.0										
611	NOV	6	1830	0	0.0		0	0.0										
612	NOV	6	1845	0	0.0		0	0.0										
613	NOV	6	1900	6	44.0	S	152	42.0	E									
614	NOV	6	1915	0	0.0		0	0.0										
615	NOV	6	1930	0	0.0		0	0.0										
616	NOV	6	1945	0	0.0		0	0.0										
617	NOV	6	2000	6	52.0	S	152	45.0	E									
618	NOV	6	2015	0	0.0		0	0.0										
619	NOV	6	2030	0	0.0		0	0.0										
620	NOV	6	2045	0	0.0		0	0.0										
621	NOV	6	2100	0	0.0		0	0.0										
622	NOV	6	2115	0	0.0		0	0.0										
623	NOV	6	2130	0	0.0		0	0.0										
624	NOV	6	2145	0	0.0		0	0.0										
625	NOV	6	2200	6	59.0	S	152	53.2	E	978958	978938	-79	1083	25	23	22	37	41	45	50	54	58	62	66	70	74	78	82	58
626	NOV	6	2215	6	57.8	S	152	7.5	E	978957	978938	-80	1595	3	4	9	13	16	19	23	26	29	33	36	39	43	47	40	26
627	NOV	6	2230	6	57.6	S	152	3.7	E	978980	978937	-107	1903	-1	2	6	10	14	18	22	26	31	35	39	43	47	51	55	31
628	NOV	6	2245	6	57.4	S	152	4.8	E	978974	978937	-152	2735	44	50	56	62	67	75	83	91	98	106	114	122	130	137	145	152	122
629	NOV	6	2300	6	57.2	S	152	0.4	E	978980	978937	-184	4524	59	62	71	80	90	99	109	119	128	137	146	156	165	175	184	191
630	NOV	6	2315	0	0.0		0	0.0					4688																
631	NOV	6	2330	0	0.0		0	0.0					4707																
632	NOV	6	2345	0	0.0		0	0.0					4726																
633	NOV	7	0	6	56.0	S	152	56.0	E				4823																
634	NOV	7	15	0	0.0		0	0.0					4609																
635	NOV	7	30	0	0.0		0	0.0					4389																
636	NOV	7	45	0	0.0		0	0.0					4440																
637	NOV	7	100	0	0.0		0	0.0					4474																
638	NOV	7	115	0	0.0		0	0.0					4440																
639	NOV	7	130	0	0.0		0	0.0					4260																
640	NOV	7	145	0	0.0		0	0.0					3944																
641	NOV	7	200	6	56.0	S	152	44.0	E				3773																
642	NOV	7	215	0	0.0		0	0.0					3670																
643	NOV	7	230	0	0.0		0	0.0					3650																
644	NOV	7	245	0	0.0		0	0.0					3524																
645	NOV	7	300	6	56.0	S	152	54.0	E				3310																
646	NOV	7	315	0	0.0		0	0.0					3112																

SEA GRAVITY REDUCTIONS FOR USS WANDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1964

CARD	MO	DAY	HOUR	LATITUDE DEG	LATITUDE MIN		LONGITUDE DEG	LONGITUDE MIN		OBS G	THEOR G	FAA	DEPTH	BOUGUER ANOMALIES IN MGAL FOR 2.25 GM/CC STEPS FROM 2.375 2.5
										MGAL	MGAL	MGAL	MTRS	2.375 2.425 2.475 2.525 2.575 2.625 2.675 2.725 2.775 2.825 2.875 2.925 2.975 MEAN
647	NOV	7	330	0	0.0		0	0.0					3010	
648	NOV	7	345	0	0.0		0	0.0					2924	
649	NOV	7	400	4	53.0	S	154	12.0	E				2924	
650	NOV	7	415	0	0.0		0	0.0					2830	
651	NOV	7	430	0	0.0		0	0.0					2327	
652	NOV	7	445	0	0.0		0	0.0					1862	
653	NOV	7	500	0	0.0		0	0.0					1344	
654	NOV	7	515	0	0.0		0	0.0					1158	
655	NOV	7	530	0	0.0		0	0.0					934	
656	NOV	7	545	0	0.0		0	0.0					800	
657	NOV	7	600	4	53.0	S	154	32.0	E				713	
658	NOV	7	615	0	0.0		0	0.0					602	
659	NOV	7	630	0	0.0		0	0.0					788	
660	NOV	7	645	0	0.0		0	0.0					511	
661	NOV	7	700	0	0.0		0	0.0					1881	
662	NOV	7	715	0	0.0		0	0.0					2200	
663	NOV	7	730	0	0.0		0	0.0					2309	
664	NOV	7	745	0	0.0		0	0.0					2334	
665	NOV	7	800	4	55.0	S	154	52.0	E				2284	
666	NOV	7	815	0	0.0		0	0.0					0	
667	NOV	7	830	0	0.0		0	0.0					3033	
668	NOV	7	845	0	0.0		0	0.0					3010	
669	NOV	7	900	0	0.0		0	0.0					3132	
670	NOV	7	915	0	0.0		0	0.0					3150	
671	NOV	7	930	0	0.0		0	0.0					0	
672	NOV	7	945	0	0.0		0	0.0					0	
673	NOV	7	1000	0	0.0		0	0.0					0	
674	NOV	7	1015	0	0.0		0	0.0					0	
675	NOV	7	1030	0	0.0		0	0.0					0	
676	NOV	7	1045	4	56.2	S	155	13.8	E	978107	978087	19	0	**********
677	NOV	7	1100	4	56.2	S	155	22.5	E	978105	978087	18	0	**********
678	NOV	7	1115	4	56.4	S	155	25.0	E	978113	978087	26	0	**********
679	NOV	7	1130	4	56.4	S	155	27.3	E	978140	978087	53	2271	173 178 182 187 192 196 201 206 211 215 220 225 229 234 230 213
680	NOV	7	1145	4	56.8	S	155	29.8	E	978156	978087	69	2234	187 191 196 201 205 210 214 219 224 228 233 238 242 247 252 226
681	NOV	7	1200	4	57.0	S	155	32.5	E	978173	978087	86	2180	201 206 210 215 219 224 228 233 237 242 246 251 255 260 264 230
682	NOV	7	1215	4	57.2	S	155	35.2	E	978168	978087	81	2153	194 199 203 208 212 217 221 226 230 235 239 244 248 252 257 231
683	NOV	7	1230	4	57.4	S	155	37.8	E	978178	978087	91	2092	201 206 210 214 219 223 227 232 236 240 245 249 253 258 262 237
684	NOV	7	1245	4	57.6	S	155	40.1	E	978193	978087	106	2052	211 215 219 223 228 232 236 240 244 248 252 257 261 265 269 244

SEA GRAVITY PROJECTIONS FOR USS MANDRAK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1964

CARD	MO	DAY	HMIN	LATITUDE DEG	MIN		LONGITUDE DEG	MIN		OBS G MGAL	THEOR G MGAL	F&A MGAL	DEPTH METRS	BOUGUER ANOMALIES IN MGAL FOR 2.25 GM/CC STEPS FROM 2.250 2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00MEAN
723	NOV	7	2330	S	0.0		E	0.0					1423								
724	NOV	7	2340	S	0.0		E	0.0					1423								
725	NOV	7	2350	S	0.0		E	0.0					1423								
726	NOV	7	2315	S	5.0	S	157	17.2	E	978141	978030	52	1470	130	133	136	139	142	145	148	151	155	158	161	164	167	170	173	150
727	NOV	7	2330	S	7.0	S	157	14.0	E	978141	978030	51	1470	130	133	136	139	142	145	148	151	154	157	160	163	166	169	172	150
728	NOV	7	2345	S	8.5	S	157	12.7	E	978145	978030	55	1473	133	136	139	142	145	148	152	155	158	161	164	167	170	173	176	153
729	NOV	8	0	S	10.0	S	157	10.1	E	978140	978001	40		***********															
730	NOV	8	15	S	11.2	S	157	8.0	E	978144	978031	52	1500	133	136	139	142	145	148	151	155	158	161	164	167	170	173	176	154
731	NOV	8	30	S	12.4	S	157	5.7	E	978148	978031	54	1500	136	139	142	145	148	151	155	158	161	164	167	170	173	177	180	157
732	NOV	8	45	S	13.0	S	156	3.5	E	978143	978032	51	1525	133	136	139	142	145	148	151	154	157	161	164	167	170	173	176	153
733	NOV	8	100	S	0.0		E	0.0					1572																
734	NOV	8	115	S	0.0		E	0.0					1618																
735	NOV	8	130	S	0.0		E	0.0					1654																
736	NOV	8	145	S	0.0		E	0.0					1663																
737	NOV	8	200	S	20.0	S	156	51.5	E	978141	978033	48	1672	136	140	143	147	150	154	157	161	164	168	171	174	178	181	185	161
738	NOV	8	215	S	21.3	S	156	48.1	E	978142	978034	48	1663	136	139	142	146	149	153	156	160	163	167	170	174	177	181	184	160
739	NOV	8	230	S	22.6	S	156	44.8	E	978139	978034	45	1663	133	136	139	143	146	150	153	157	160	164	167	171	174	177	181	157
740	NOV	8	245	S	23.8	S	156	41.7	E	978135	978035	41	1700	131	134	138	141	145	148	152	155	159	162	166	169	173	176	180	156
741	NOV	8	300	S	0.0		E	0.0					1756																
742	NOV	8	315	S	26.4	S	156	33.5	E	978133	978035	37		***********															
743	NOV	8	330	S	0.0		E	0.0					1783																
744	NOV	8	345	S	29.2	S	156	24.7	E	978134	978036	40	1831	137	140	144	148	152	156	159	163	167	171	175	178	182	186	190	165
745	NOV	8	400	S	30.5	S	156	21.8	E	978133	978036	36	1833	133	137	141	145	148	152	156	160	164	167	171	175	179	183	187	162
746	NOV	8	415	S	32.0	S	156	18.6	E	978137	978037	40	1860	138	142	146	150	153	157	161	165	169	173	177	180	184	188	192	167
747	NOV	8	430	S	33.5	S	156	15.2	E	978136	978037	39	1860	137	141	145	149	153	156	160	164	168	172	176	180	183	187	191	167
748	NOV	8	445	S	35.0	S	156	12.0	E	978136	978038	38		***********															
749	NOV	8	500	S	36.5	S	156	8.8	E	978139	978038	41	1798	135	139	143	146	150	154	157	161	165	168	172	176	180	183	187	163
750	NOV	8	515	S	37.9	S	156	5.8	E	978137	978039	38	1816	136	139	143	146	149	153	157	161	164	168	172	176	180	183	187	163
751	NOV	8	530	S	0.0		E	0.0					1641																
752	NOV	8	545	S	39.5	S	156	15.0	E	978134	978039	35	1843	133	137	141	145	148	152	156	160	164	168	172	176	179	183	187	163
753	NOV	8	600	S	40.0	S	156	12.0	E	978135	978039	35	1883	135	139	143	147	150	154	158	162	166	170	174	178	182	186	190	165
754	NOV	8	615	S	43.4	S	156	8.8	E	978133	978130	32	1937	134	138	142	146	150	154	158	162	167	171	175	179	183	187	191	166
755	NOV	8	630	S	45.2	S	156	7.5	E	978134	978131	34	1955	137	141	145	149	153	157	161	165	169	173	177	182	186	190	194	169
756	NOV	8	645	S	46.9	S	156	5.3	E	978130	978131	29	2047	137	141	146	150	154	158	163	167	171	175	179	184	188	192	196	171
757	NOV	8	700	S	48.7	S	156	2.2	E	978120	978132	19		***********															
758	NOV	8	715	S	48.6	S	156	0.8	E	978110	978132	8	2260	128	133	138	142	147	152	156	161	166	171	175	180	185	189	194	169
759	NOV	8	730	S	49.0	S	155	59.3	E	978099	978132	-2	2481	138	134	139	144	149	154	159	165	170	175	180	185	190	195	201	174
760	NOV	8	745	S	50.0	S	155	57.3	E	978111	978132	0	2621	146	151	157	162	168	173	178	184	189	195	200	205	211	216	222	195

SEA GRAVITY REDUCTIONS FOR USS WANDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1964

CARD	MO	DAY	HOUR	LATITUDE DEG	LATITUDE MIN		LONGITUDE DEG	LONGITUDE MIN		OBS G THEOR G MGAL	FAA MGAL	DEPTH METRS	BOUGUER ANOMALIES IN MGAL FOR 2.35 GM/CC STEPS FROM 2.30 TO 3.0 2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	MEAN
761	NOV	8	800	5	51.0	S	155	55.7	E	978954	978100	-7	2783	130	145	151	156	162	168	174	180	185	191	197	203	208	214	220	132
762	NOV	8	815	5	52.0	S	155	54.2	E	978988	978103	-14	2973	142	148	155	161	167	173	179	184	192	198	204	210	216	223	229	200
763	NOV	8	830	5	52.7	S	155	52.7	E	979008	978103	-5	2963	151	157	163	169	176	182	188	194	200	206	213	219	225	231	237	200
764	NOV	8	845	5	54.0	S	155	51.0	E	979030	978103	-12	3001	145	151	158	164	170	176	182	188	195	201	207	214	220	226	232	204
765	NOV	8	900	5	55.0	S	155	49.8	E	979052	978104	-21	2991	126	132	139	145	151	157	163	170	176	182	188	194	201	207	213	194
766	NOV	8	915	5	56.0	S	155	47.2	E				2990																
767	NOV	8	930	5	57.0	S	155	45.6	E	979073	978104	-25	2954	83	87	91	95	100	104	108	112	117	121	125	129	134	138	142	117
768	NOV	8	945	5	58.1	S	155	43.9	E	979090	978105	-23	2976	101	106	111	116	121	126	131	136	141	146	151	156	160	165	170	144
769	NOV	8	1000	5	59.1	S	155	42.2	E	979050	978105	-15	1613	69	73	76	79	83	86	89	93	96	99	103	106	110	113	116	93
770	NOV	8	1015	1	0.0		0	0.0					1310																
771	NOV	8	1030	5	1.0	S	155	42.8	E	979115	978106	10	1247	76	79	81	83	86	89	91	94	96	99	102	104	107	109	112	91
772	NOV	8	1045	5	2.0	S	155	44.4	E	979115	978106	0	1447	86	89	92	95	98	101	104	107	110	113	116	119	122	125	128	105
773	NOV	8	1100	5	3.0	S	155	45.9	E	979110	978106	4	1830	103	107	111	115	119	123	127	131	135	139	143	147	151	154	158	124
774	NOV	8	1115	5	4.0	S	155	44.9	E	979107	978107	1	1605	86	89	92	95	99	102	105	109	112	115	119	122	125	129	132	109
775	NOV	8	1130	5	5.4	S	155	43.2	E	978125	978107	18	1138	78	80	83	85	87	90	92	94	97	99	101	104	106	108	111	90
776	NOV	8	1145	5	6.4	S	155	40.5	E	978130	978107	23	1138	83	85	87	90	92	94	97	99	102	104	106	109	111	113	116	95
777	NOV	8	1200	5	7.8	S	155	51.0	E				1680																
778	NOV	8	1215	1	0.0		0	0.0					1044																
779	NOV	8	1230	5	10.2	S	155	53.3	E	978097	978108	-10	1635	75	78	82	86	89	92	96	99	102	106	109	113	116	119	123	99
780	NOV	8	1245	1	0.0		0	0.0					1801																
781	NOV	8	1300	5	12.5	S	155	55.8	E	978092	978109	-16	1680	73	76	80	83	87	90	94	97	101	104	108	111	115	118	122	98
782	NOV	8	1315	5	13.4	S	155	57.2	E	978104	978110	-5	1368	67	69	72	75	78	81	84	86	89	92	95	98	101	103	106	84
783	NOV	8	1330	5	14.7	S	155	58.4	E	978103	978110	-4	1323	63	66	69	72	74	77	80	83	85	88	91	94	96	99	102	80
784	NOV	8	1345	5	15.8	S	155	59.3	E	978112	978110	2	1323	72	74	77	80	83	85	88	91	94	96	99	102	104	107	110	88
785	NOV	8	1400	5	17.0	S	156	1.2	E	978112	978111	1	1225	66	69	71	74	76	79	81	84	87	89	92	94	97	99	102	81
786	NOV	8	1415	1	0.0		0	0.0					1225																
787	NOV	8	1430	1	0.0		0	0.0					1035																
788	NOV	8	1445	5	20.2	S	156	4.8	E	978116	978112	4	1132	64	66	68	71	73	75	78	80	82	85	87	89	92	94	97	76
789	NOV	8	1500	1	0.0		0	0.0					949																
790	NOV	8	1515	1	0.0		0	0.0					949																
791	NOV	8	1530	1	0.0		0	0.0					936																
792	NOV	8	1545	1	0.0		0	0.0					947																
793	NOV	8	1600	5	26.0	S	156	11.3	E	978135	978114	22	950	72	74	74	78	80	82	84	86	88	90	92	94	96	98	100	80
794	NOV	8	1615	1	0.0		0	0.0					1017																
795	NOV	8	1630	5	28.4	S	156	13.7	E	978151	978114	36	1075	93	95	97	100	102	104	106	109	111	113	115	117	120	122	124	104
796	NOV	8	1645	5	29.6	S	156	14.9	E	978152	978115	37	815	80	82	83	85	87	88	90	92	93	95	97	98	100	102	104	85
797	NOV	8	1700	1	0.0		0	0.0					637																
798	NOV	8	1715	5	32.0	S	156	17.2	E	978160	978114	53	532	81	82	83	84	86	87	88	89	90	91	92	93	94	96	97	82

SEA GRAVITY REDUCTIONS FOR USS WAINWRIGHT SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1944

CARD	MO	DAY	HOUR	LATITUDE DEG	LATITUDE MIN		LONGITUDE DEG	LONGITUDE MIN		OBS G MGAL	THEO2 G MGAL	FAA MGAL	DEPTH METERS	BOUGUER ANOMALIES IN MGAL FOR 2.25 GM/CC STEPS FROM 2.25TO 3.0 2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00MEAN
875	NOV	8	1230	0	0.0		0	0.0					0								
876	NOV	8	1245	0	0.0		0	0.0					0								
877	NOV	8	1300	0	0.0		0	0.0					0								
878	NOV	8	1315	0	0.0		0	0.0					0								
879	NOV	8	1330	0	0.0		0	0.0					0								
880	NOV	8	1345	0	0.0		0	0.0					0								
881	NOV	8	1400	0	0.0		0	0.0					0								
882	NOV	8	1415	0	0.0		0	0.0					0								
883	NOV	8	1430	0	0.0		0	0.0					0								
884	NOV	8	1445	6	40.0	S	159	17.2	E	978078	978110	-30	0	**********							
885	NOV	8	1500	6	42.0	S	159	17.3	E	978084	978110	-25	0	**********							
886	NOV	8	1515	6	44.0	S	159	17.4	E	978100	978120	-19	0	**********							
887	NOV	8	1530	6	46.0	S	159	17.5	E	978104	978121	-17	0	**********							
888	NOV	8	1545	6	48.7	S	159	17.6	E	978103	978121	-18	0	**********							
889	NOV	8	1600	6	50.4	S	159	17.6	E	978120	978122	7	0	**********							
890	NOV	8	1615	6	51.8	S	159	17.6	E	978142	978123	19	0	**********							
891	NOV	8	1630	6	53.2	S	159	17.6	E	978153	978123	30	0	**********							
892	NOV	8	1645	6	54.5	S	159	17.6	E	978167	978124	44	0	**********							
893	NOV	8	1700	6	56.0	S	159	17.6	E	978170	978124	46	0	**********							
894	NOV	8	1715	6	58.0	S	159	17.7	E	978133	978125	13	1236	70	81	86	86	90	92	94	97	99	102	104	107	110	112	115	93
895	NOV	8	1730	7	0.0	S	159	19.3	E	978208	978125	83	1218	147	149	152	154	157	159	162	164	167	170	172	175	177	180	182	161
896	NOV	8	1745	6	59.0	S	159	20.7	E	978209	978125	75	962	125	127	129	131	133	135	137	139	141	143	145	147	149	151	153	134
897	NOV	8	1800	6	57.7	S	159	22.5	E	978227	978125	112	969	159	160	162	163	165	167	169	171	172	174	176	178	180	181	183	164
898	NOV	8	1815	6	56.5	S	159	24.3	E	978193	978124	74	1143	135	137	139	142	144	147	149	151	154	156	158	161	163	166	168	147
899	NOV	8	1830	6	55.4	S	159	26.0	E	978217	978124	93	1525	174	177	180	183	187	190	193	196	199	202	206	209	212	215	218	195
900	NOV	8	1845	6	54.3	S	159	27.7	E	978183	978123	58	2073	168	172	177	181	185	189	194	198	202	207	211	215	220	224	228	203
901	NOV	8	1900	6	53.2	S	159	29.6	E	978169	978123	46	1690	135	139	142	145	149	153	156	160	163	167	170	174	177	181	184	161
902	NOV	8	1915	6	52.2	S	159	31.3	E	978175	978123	53	1444	130	133	135	138	141	144	147	150	153	156	159	162	165	168	171	148
903	NOV	8	1930	6	51.3	S	159	33.6	E	978177	978122	55	1514	135	138	141	144	147	151	154	157	160	163	166	169	173	176	179	156
904	NOV	8	1945	6	50.4	S	159	34.7	E	978144	978122	22	1234	87	90	92	95	98	100	103	105	108	110	113	116	118	121	123	102
905	NOV	8	2000	6	49.4	S	159	35.7	E	978181	978122	59	1734	151	154	158	161	165	169	172	175	179	183	187	190	194	197	201	177
906	NOV	8	2015	6	48.5	S	159	37.1	E	978165	978121	43	1883	143	147	151	154	158	162	166	170	174	178	182	186	190	194	197	173
907	NOV	8	2030	6	47.7	S	159	38.4	E	978126	978121	5	2260	124	128	134	138	143	148	153	157	162	167	171	176	181	185	190	164
908	NOV	8	2045	6	46.8	S	159	39.7	E	978147	978122	25	1765	110	122	126	130	133	137	141	144	148	152	155	159	163	166	170	146
909	NOV	8	2100	6	52.0	S	159	40.6	E	978150	978123	28	1340	125	129	133	136	140	144	148	152	155	159	163	167	171	175	178	154
910	NOV	8	2115	6	54.3	S	159	40.5	E	978143	978123	20	2153	133	138	142	147	151	156	160	165	169	174	178	183	187	191	196	170
911	NOV	8	2130	6	56.4	S	159	41.0	E	978139	978124	14	2125	126	130	135	139	143	148	152	157	161	165	170	174	179	183	188	162
912	NOV	8	2145	6	58.0	S	159	41.7	E	978141	978125	16	2207	122	126	130	134	138	142	147	151	155	159	164	168	172	176	180	155

SEA GRAVITY REDUCTIONS FOR USS WANDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1944

CARD	MO	DAY	HOUR	LATITUDE DEG	MIN		LONGITUDE DEG	MIN		OBS G MGAL	THEOR G MGAL	EAA MGAL	DEPTH METRS	BOUGUER ANOMALIES IN MGAL FOR 2.25 GM/CC STEPS FROM 2.3TO 3.0 2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00MEAN
913	NOV	9	2200	7	1.2	S	158	42.2	E	978142	978126	16	2024	123 127 131 136 140 144 148 152 157 161 165 169 173 178 182 157
914	NOV	9	2215	7	3.0	S	158	42.7	E	978130	978127	12	2033	123 127 132 136 140 145 149 153 158 162 167 171 175 180 184 159
915	NOV	9	2230	7	4.8	S	158	43.2	E	978131	978127	3	2340	127 132 137 142 147 152 157 161 166 171 176 181 185 191 196 170
916	NOV	9	2245	7	6.6	S	158	43.8	E	978133	978128	4	2532	130 144 150 155 160 165 171 176 181 186 192 197 202 207 213 186
917	NOV	9	2300	7	8.5	S	158	44.7	E	978136	978130	7	2558	142 147 153 158 163 169 174 179 185 190 195 200 206 211 216 190
918	NOV	9	2315	7	8.6	S	158	44.0	E				2485	
919	NOV	9	2330	7	11.7	S	158	45.2	E	978140	978130	10	2078	120 125 129 133 137 142 146 150 155 159 163 168 172 176 181 155
920	NOV	9	2345	7	13.7	S	158	45.3	E	978138	978131	8	1997	113 117 121 125 129 133 137 141 145 150 154 158 162 166 170 145
921	NOV	10	0	7	13.0	S	158	47.6	E	978176	978131	45	2410	172 177 182 187 192 197 202 207 212 217 222 227 232 237 242 217
922	NOV	10	15	7	13.7	S	158	50.8	E	978159	978131	28	2301	155 160 165 170 175 180 185 190 195 200 204 209 214 219 224 198
923	NOV	10	30	7	13.5	S	158	53.0	E	978164	978130	33	2067	144 148 153 157 161 166 170 174 179 183 187 192 196 200 205 180
924	NOV	10	45	7	13.2	S	158	56.0	E	978162	978130	32	1960	136 140 144 148 152 156 160 164 168 173 177 181 185 189 193 168
925	NOV	10	100	7	13.0	S	159	0.6	E	978150	978130	20	2356	153 158 163 168 173 178 183 188 193 197 202 207 212 217 222 196
926	NOV	10	115	7	12.8	S	159	3.6	E	978137	978130	41	2318	144 150 173 178 183 188 192 197 202 207 212 216 221 226 231 205
927	NOV	10	130	7	12.6	S	159	6.8	E	978185	978130	55	1960	158 162 166 170 174 178 183 187 191 195 199 203 207 211 215 190
928	NOV	10	145	7	12.4	S	159	9.8	E	978191	978130	61	1948	154 158 162 166 170 174 178 182 186 190 194 198 202 207 211 186
929	NOV	10	200	7	12.2	S	159	12.9	E	978177	978130	47	2005	158 162 166 171 175 179 184 188 192 197 201 205 210 214 219 193
930	NOV	10	215	7	12.0	S	159	16.5	E	978177	978130	47	2150	160 165 169 174 178 183 187 192 196 200 205 209 214 218 223 197
931	NOV	10	230	7	11.8	S	159	19.4	E	978175	978130	45	1820	142 145 149 153 157 161 164 168 172 176 180 183 187 191 195 170
932	NOV	10	245	7	11.6	S	159	22.6	E	978151	978130	21	2206	138 142 147 152 156 161 165 170 174 179 184 188 193 197 202 176
933	NOV	10	300	7	11.4	S	159	25.3	E	978094	978130	-35	3859	168 176 184 192 200 208 216 224 232 240 248 256 264 272 280 240
934	NOV	10	315	7	11.2	S	159	28.6	E	978068	978130	-61	3720	135 143 150 158 166 173 181 189 197 204 212 220 228 235 243 213
935	NOV	10	330	7	11.0	S	159	31.8	E	978055	978130	-73	4149	145 154 163 171 180 188 197 205 214 223 231 240 248 257 266 234
936	NOV	10	345	7	10.8	S	159	34.8	E	978053	978130	-78	4103	137 146 155 163 172 180 189 197 206 214 223 231 240 248 257 225
937	NOV	10	400	7	10.7	S	159	38.0	E	978061	978130	-67	4103	148 157 165 174 183 191 199 208 216 225 234 242 251 259 268 236
938	NOV	10	415	7	10.6	S	159	41.3	E	978053	978130	-80		**********
939	NOV	10	430	7	10.0	S	159	44.3	E	978031	978130	-87		**********
940	NOV	10	445	7	8.8	S	159	47.0	E	978045	978130	-83		**********
941	NOV	10	500	7	7.6	S	159	49.5	E	978049	978128	-78		**********
942	NOV	10	515	7	6.4	S	159	51.7	E	978071	978128	-56	3724	140 148 155 163 171 179 186 194 202 209 217 225 233 240 248 218
943	NOV	10	530	7	5.2	S	159	54.0	E	978093	978127	-44	3329	131 137 144 151 158 165 172 179 186 193 199 206 213 220 227 198
944	NOV	10	545	7	4.1	S	159	56.1	E	978093	978127	-37	3132	127 134 140 147 153 160 166 173 179 186 192 199 205 212 218 189
945	NOV	10	600	7	2.9	S	159	58.3	E	978102	978127	-23	2952	132 138 144 150 156 162 169 175 181 187 193 199 205 211 218 189
946	NOV	10	615	7	1.7	S	160	0.6	E	978111	978126	-14	2812	134 140 146 151 157 163 169 175 181 186 192 198 204 210 216 188
947	NOV	10	630	7	0.5	S	160	3.0	E	978116	978126	-8	2714	134 140 145 151 157 162 168 173 179 185 190 196 202 207 213 185
948	NOV	10	645	6	59.3	S	160	4.9	E	978120	978125	-4		**********
949	NOV	10	700	6	58.1	S	160	6.7	E	978143	978125	18	2439	140 155 160 165 170 175 180 186 191 196 201 206 211 217 222 195
950	NOV	10	715	6	56.9	S	160	9.0	E	978132	978124	8	2445	137 142 147 152 157 162 167 172 178 183 188 193 198 203 208 182

SEA GRAVITY REDUCTIONS FOR USS WANDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1944

CARD	MO	DAY	HOUR	LATITUDE DEG	MIN		LONGITUDE DEG	MIN		OBS G MGAL	THEOR G MGAL	EAA MGAL	DEPTH METS	BOUGUER ANOMALIES IN MGAL FOR 2.25 GM/CC STEPS FROM 2.375 TO 3.0 2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	MEAN
951	NOV	10	730	6	55.7	S	160	11.3	E				2300									
952	NOV	10	745	6	54.6	S	160	13.3	E	978163	978126	45	2122	157	162	166	170	175	179	184	188	193	197	201	206	210	215	210	194
953	NOV	10	800	6	53.3	S	160	15.2	E	978163	978123	45	2122	157	161	165	170	174	179	183	187	192	196	201	205	209	214	218	183
954	NOV	10	815	6	52.2	S	160	17.6	E	978176	978123	53	2035	160	165	169	173	177	182	186	190	194	198	203	207	211	215	210	194
955	NOV	10	830	6	51.0	S	160	19.7	E				1937																
956	NOV	10	845	6	49.8	S	160	21.8	E	978175	978122	53	1936	150	154	158	162	166	170	173	177	181	185	189	193	196	200	204	179
957	NOV	10	900	6	48.6	S	160	23.8	E	978176	978121	54	1936	151	155	159	163	167	170	174	178	182	186	190	193	197	201	205	180
958	NOV	10	915	6	47.4	S	160	25.7	E	978175	978121	54	1942	152	156	160	164	168	171	175	179	183	187	191	195	199	203	206	182
959	NOV	10	930	6	46.2	S	160	27.6	E	978171	978121	53	1940	149	153	156	160	164	168	172	176	179	183	187	191	195	199	203	178
960	NOV	10	945	6	45.0	S	160	29.7	E	978173	978120	53	1940	151	155	159	163	167	171	174	178	182	186	190	194	198	201	205	181
961	NOV	10	1000	6	43.8	S	160	31.7	E	978173	978120	53	1938	152	156	160	164	168	172	176	180	184	187	191	195	199	203	207	182
962	NOV	10	1015	6	42.6	S	160	34.7	E	978166	978110	47	1938	147	151	155	159	163	167	170	174	178	182	186	190	194	198	202	177
963	NOV	10	1030	6	41.4	S	160	35.7	E	978170	978110	51	1933	153	157	161	165	169	173	177	181	185	189	193	197	201	205	209	184
964	NOV	10	1045	6	40.2	S	160	39.3	E				1933																
965	NOV	10	1100	6	39.1	S	160	41.3	E				1933																
966	NOV	10	1115	6	37.9	S	160	43.2	E				1953																
967	NOV	10	1130	6	36.8	S	160	43.8	E				1953																
968	NOV	10	1145	6	37.0	S	160	45.2	E				1908																
969	NOV	10	1200	6	41.3	S	160	53.1	E	978184	978110	65	2007	171	175	179	183	188	192	196	200	204	208	213	217	221	225	229	204
970	NOV	10	1215	6	42.5	S	160	55.6	E	978189	978110	69	1985	173	177	181	185	190	194	198	202	206	210	214	218	222	227	231	206
971	NOV	10	1230	6	43.7	S	160	58.0	E	978183	978120	72	1952	175	179	183	187	191	196	200	204	208	212	216	220	224	228	232	207
972	NOV	10	1245	6	44.9	S	161	0.5	E				1953																
973	NOV	10	1300	6	46.1	S	161	2.9	E	978197	978121	76	2011	182	186	191	195	199	203	207	211	216	220	224	228	232	237	241	216
974	NOV	10	1315	6	47.2	S	161	5.4	E				2030																
975	NOV	10	1330	6	48.4	S	161	7.8	E	978201	978121	80	1983	185	189	193	197	201	205	210	214	218	222	226	230	234	238	242	218
976	NOV	10	1345	6	49.6	S	161	10.3	E	978186	978122	64	2122	176	181	185	190	194	198	203	207	212	216	221	225	229	234	238	213
977	NOV	10	1400	6	50.8	S	161	12.7	E				1900																
978	NOV	10	1415	6	52.0	S	161	14.0	E	978192	978123	69	1845	166	170	174	178	182	186	190	193	197	201	205	209	213	216	220	195
979	NOV	10	1430	6	55.1	S	161	15.5	E	978189	978124	66	1760	158	163	166	170	174	177	181	185	188	192	196	199	203	207	211	186
980	NOV	10	1445	6	52.3	S	161	17.0	E	978188	978123	65	1761	158	162	165	169	173	176	180	183	187	191	194	198	201	205	209	185
981	NOV	10	1500	6	59.4	S	161	18.5	E	978191	978125	66	1704	156	159	163	167	170	174	177	181	184	188	191	195	198	202	205	182
982	NOV	10	1515	7	1.5	S	161	20.3	E	978179	978126	53		?**********															
983	NOV	10	1530	7	3.7	S	161	21.4	E	978185	978127	58		?**********															
984	NOV	10	1545	7	5.8	S	161	23.0	E	978185	978128	57		?**********															
985	NOV	10	1600	7	7.8	S	161	24.4	E	978181	978128	53	1752	145	149	152	156	160	163	167	171	174	178	182	185	189	193	196	172
986	NOV	10	1615	7	10.1	S	161	25.9	E	978180	978129	51	1752	144	147	151	154	158	162	165	169	173	176	180	184	187	191	194	170
987	NOV	10	1630	7	12.2	S	161	27.4	E	978179	978130	49	1752	142	146	149	153	157	160	164	167	171	175	178	182	186	189	193	169
988	NOV	10	1645	7	14.3	S	161	28.9	E	978178	978131	47	1771	141	144	148	152	155	159	163	166	170	174	177	181	185	188	192	169

SEA GRAVITY REDUCTIONS FOR USS WANDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1964

CARD	MO	DAY	HOUR	LATITUDE DEG	LATITUDE MIN		LONGITUDE DEG	LONGITUDE MIN		OBS G	THEOR G	FAA MGAL	DEPTH METRS	BOUGUER ANOMALIES IN MGAL FOR 2.25 GM/CC STEPS FROM 2.3TO 3.0 2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00MEAN
988	NOV	10	1700	7	16.4	S	161	30.4	E	978181	978132	40	1752	142 146 140 153 157 160 164 167 171 175 178 182 186 189 193 160
989	NOV	10	1715	7	18.4	S	161	31.0	E	978180	978132	48	1708	138 141 145 149 152 156 159 163 166 170 173 177 180 184 188 164
991	NOV	10	1730	7	20.7	S	161	33.4	E	978184	978133	51	1615	136 140 143 146 150 153 156 160 163 166 170 173 176 180 183 160
992	NOV	10	1745	7	22.8	S	161	34.0	E	978187	978134	53		**********
993	NOV	10	1800	7	25.0	S	161	36.3	E	978184	978135	50	1514	139 143 146 149 152 155 158 161 165 168 171 174 177 180 183 161
994	NOV	10	1815	7	27.1	S	161	37.8	E	978202	978136	66	1617	152 155 158 162 165 169 172 175 179 182 185 189 192 195 199 175
995	NOV	10	1830	7	29.2	S	161	39.3	E	978207	978136	71	1360	142 144 147 150 153 156 158 161 164 167 169 172 175 178 181 150
996	NOV	10	1845	7	31.4	S	161	40.8	E	978217	978137	80	1294	148 151 153 156 159 161 164 167 169 172 175 178 180 183 186 154
997	NOV	10	1900	7	33.5	S	161	42.3	E	978225	978138	87	1158	148 150 153 155 158 160 163 165 167 170 172 174 177 179 182 161
998	NOV	10	1915	7	34.3	S	161	40.6	E				1086	
999	NOV	10	1930	7	35.5	S	161	38.4	E	978223	978138	84	1177	147 149 151 154 156 159 161 164 166 169 171 173 176 178 181 160
1000	NOV	10	1945	7	36.7	S	161	36.2	E	978215	978139	75	1316	145 148 150 153 156 158 161 164 167 169 172 175 178 180 183 161
1001	NOV	10	2000	7	38.0	S	161	34.0	E	978208	978140	68	1337	142 144 147 150 153 156 159 162 165 168 171 173 176 179 182 160
1002	NOV	10	2015	7	39.2	S	161	31.8	E	978198	978140	57	1470	136 139 142 145 148 151 154 157 160 163 166 169 172 175 179 156
1003	NOV	10	2030	7	40.4	S	161	29.6	E	978188	978141	48	1663	136 140 143 146 150 153 157 160 164 167 171 174 177 181 184 161
1004	NOV	10	2045	7	41.6	S	161	27.4	E	978181	978141	40	1626	126 129 132 136 139 143 146 149 153 156 160 163 166 170 173 150
1005	NOV	10	2100	7	42.8	S	161	25.2	E	978176	978142	35	1739	126 130 134 137 141 145 148 152 155 159 163 166 170 173 177 153
1006	NOV	10	2115	7	44.1	S	161	23.0	E	978180	978142	38	1931	134 138 142 146 149 153 157 161 165 168 172 176 180 184 187 163
1007	NOV	10	2130	7	45.3	S	161	20.8	E	978186	978143	43	2015	149 153 158 162 166 170 174 179 183 187 191 195 199 204 208 183
1008	NOV	10	2145	7	46.5	S	161	18.7	E	978183	978143	46	2107	157 162 166 171 175 179 184 188 192 197 201 206 210 214 219 193
1009	NOV	10	2200	7	47.7	S	161	16.5	E	978178	978144	34	2247	153 157 162 167 171 176 181 185 190 195 199 204 209 213 218 192
1010	NOV	10	2215	7	49.0	S	161	14.3	E				2386	
1011	NOV	10	2230	7	50.2	S	161	12.1	E	978135	978145	-9	2477	121 126 131 137 142 147 152 157 162 167 173 178 183 188 193 167
1012	NOV	10	2245	7	51.4	S	161	9.9	E	978120	978145	-25	2644	114 120 125 130 136 141 147 152 158 163 169 174 180 185 191 164
1013	NOV	10	2300	7	52.6	S	161	7.7	E	978134	978146	-11	2804	136 142 148 154 160 165 171 177 183 189 194 200 206 212 218 190
1014	NOV	10	2315	7	53.8	S	161	5.5	E	978088	978146	-57	3068	104 111 117 123 130 136 142 149 155 162 168 174 181 187 193 165
1015	NOV	10	2330	7	55.1	S	161	3.3	E	978078	978147	-69	3238	102 109 116 123 129 136 143 149 156 163 170 176 183 190 197 167
1016	NOV	10	2345	7	56.3	S	161	1.1	E	978066	978147	-80	3371	97 104 111 118 125 132 139 146 153 160 167 174 181 188 195 165
1017	NOV	11	0	7	57.5	S	160	58.9	E	978056	978148	-91	3621	99 107 114 122 129 137 144 152 159 167 174 182 189 197 204 174
1018	NOV	11	15	7	58.8	S	160	56.7	E	978061	978148	-86	3243	85 93 99 106 112 119 126 133 140 146 153 160 167 173 180 151
1019	NOV	11	30	8	0.0	S	160	54.5	E	978083	978149	-65	2937	88 94 100 106 112 118 124 130 136 142 148 154 160 166 172 144
1020	NOV	11	45	8	1.2	S	160	52.3	E	978115	978149	-33	2017	72 76 81 85 90 93 97 101 106 110 114 118 122 127 131 106
1021	NOV	11	100	8	3.0	S	160	55.0	E	978105	978150	-44	2567	91 96 102 107 112 118 123 128 134 139 144 150 155 160 166 139
1022	NOV	11	115	8	4.7	S	160	57.6	E	978082	978151	-67	3078	94 101 107 113 120 126 133 139 145 152 158 165 171 177 184 155
1023	NOV	11	130	8	6.3	S	160	59.8	E	978060	978151	-91	3502	108 115 123 130 138 145 153 160 168 175 183 190 197 205 212 182
1024	NOV	11	145	8	8.0	S	161	2.4	E	978053	978152	-98	3704	96 104 112 119 127 135 142 150 158 166 173 181 189 196 204 174
1025	NOV	11	200	8	9.7	S	161	4.8	E	978046	978153	-106	3963	102 110 118 127 135 143 151 160 168 176 184 193 201 209 217 186
1026	NOV	11	215	8	11.3	S	161	7.3	E	978005	978153	-148	3960	60 68 77 85 93 101 110 118 126 134 143 151 159 167 175 144

SEA GRAVITY REDUCTIONS FOR USS WENDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1944

CARD	MO	DAY	HOUR	LATITUDE DEG	MIN		LONGITUDE DEG	MIN		OBS G THEOR G		EAS MODEL	MODEL	DEPTH MEAN	FAIRED ANOMALIES IN MGAL FOR 0.05 SWEEP STEPS FROM 2.370 TO 3.0 2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	MEAN
1027	NOV	11	330	8	13.0	S	161	3.8	E	978033	978154	-116	3265	96	102	110	119	127	135	143	151	160	168	176	184	193	201	209	178
1028	NOV	11	345	8	14.7	S	161	13.3	E	978033	978155	-115	3273	94	102	111	119	127	135	144	152	160	169	177	185	193	202	210	179
1029	NOV	11	350	8	16.4	S	161	14.8	E	978045	978154	-110	3273	96	104	112	120	128	136	144	152	160	168	177	185	193	201	209	178
1030	NOV	11	355	8	18.0	S	161	17.3	E	978043	978154	-111	3283	91	99	107	116	124	132	140	148	156	164	172	180	188	196	204	173
1031	NOV	11	330	8	13.7	S	161	19.7	E	978055	978157	-101	3275	108	116	125	133	141	149	158	166	174	182	191	199	207	215	224	192
1032	NOV	11	345	8	21.4	S	161	22.2	E	978053	978158	-104	3275	105	114	122	130	139	147	155	163	171	180	188	196	204	213	221	190
1033	NOV	11	400	8	23.0	S	161	24.6	E	978053	978158	-105	3278	105	114	122	130	139	147	155	164	172	180	188	197	205	213	222	190
1034	NOV	11	415	8	24.7	S	161	27.1	E	978054	978159	-102		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
1035	NOV	11	430	8	26.4	S	161	29.6	E	978058	978160	-101		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
1036	NOV	11	445	8	28.1	S	161	32.0	E	978064	978161	-96		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
1037	NOV	11	500	8	29.7	S	161	34.5	E				3231																		
1038	NOV	11	515	8	31.4	S	161	38.0	E	978073	978162	-88	3260	110	117	125	133	141	149	156	164	172	180	188	195	203	211	219	188
1039	NOV	11	530	8	31.5	S	161	41.1	E	978081	978162	-80	3257	112	120	127	135	143	151	158	166	173	181	188	196	203	211	218	188
1040	NOV	11	545	8	32.4	S	161	43.4	E	978080	978163	-81	3251	108	116	123	131	138	146	153	161	168	176	183	191	198	206	213	183
1041	NOV	11	600	8	33.3	S	161	45.7	E	978084	978163	-68	3257	121	129	136	144	151	159	166	174	181	189	196	204	211	219	226	194
1042	NOV	11	615	8	34.2	S	161	48.2	E	978102	978163	-60		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
1043	NOV	11	630	8	35.1	S	161	50.7	E	978108	978164	-55	3290	125	132	139	146	153	160	167	175	182	189	196	203	210	217	224	195
1044	NOV	11	645	8	36.0	S	161	53.4	E	978115	978164	-53	3290	127	134	141	148	155	163	170	177	184	191	198	205	212	219	226	197
1045	NOV	11	700	8	36.9	S	161	56.0	E	978115	978165	-49	3291	131	138	145	152	159	166	173	180	187	194	201	208	215	222	229	200
1046	NOV	11	715	8	37.8	S	161	57.7	E	978122	978165	-42		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
1047	NOV	11	730	8	38.7	S	161	59.5	E	978128	978165	-37	3293	138	145	152	159	166	173	180	187	194	200	207	214	221	228	235	205
1048	NOV	11	745	8	39.6	S	162	1.8	E	978137	978166	-28	3331	147	154	161	168	175	182	188	195	202	209	216	223	230	237	244	214
1049	NOV	11	800	8	40.5	S	162	4.1	E	978142	978166	-23	3354	153	160	167	174	181	188	195	202	209	216	223	230	236	243	250	221
1050	NOV	11	815	8	40.1	S	162	6.4	E																						
1051	NOV	11	830	8	41.3	S	162	4.2	E	978133	978167	-33		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
1052	NOV	11	845	8	42.4	S	162	1.8	E	978130	978167	-44		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
1053	NOV	11	900	8	43.6	S	161	59.5	E	978124	978168	-60	3315	135	142	150	158	166	173	181	189	196	204	212	219	227	235	243	212
1054	NOV	11	915	8	44.8	S	161	57.7	E	978096	978168	-71	3262	127	135	143	151	159	166	174	182	190	197	205	213	221	228	236	206
1055	NOV	11	930	8	46.0	S	161	55.3	E	977982	978169	-185		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
1054	NOV	11	945	8	47.1	S	161	53.5	E	978077	978169	-92	4035	120	129	137	145	154	162	170	179	187	195	204	212	220	229	237	205
1057	NOV	11	1000	8	48.3	S	161	51.2	E	978073	978170	-95		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
1058	NOV	11	1015	8	49.5	S	161	49.2	E	978077	978170	-92	3758	105	113	121	129	136	144	152	160	168	175	183	191	199	207	214	184
1059	NOV	11	1030	8	50.6	S	161	47.2	E	978081	978171	-70	3777	120	127	135	143	151	159	167	174	182	190	198	206	214	221	229	199
1060	NOV	11	1045	8	51.8	S	161	45.0	E	978087	978171	-73	3753	98	104	111	118	125	131	138	145	152	159	165	172	179	185	192	162
1061	NOV	11	1100	8	53.0	S	161	43.5	E	978104	978172	-67	3583	60	74	70	85	90	95	101	106	112	117	123	128	133	139	144	117
1062	NOV	11	1115	8	54.1	S	161	40.8	E	978107	978172	15	3414	143	148	153	158	163	168	173	178	183	188	193	198	203	208	213	187
1063	NOV	11	1130	8	55.3	S	161	38.7	E	978177	978173	5	3404	132	137	142	147	152	157	162	167	172	177	182	187	192	197	202	176
1064	NOV	11	1145	8	56.5	S	161	36.5	E	978196	978173	51	800	92	95	96	98	100	101	103	105	106	108	110	111	113	115	116	99

SEA GRAVITY REDUCTIONS FOR USS WANDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1966

CARD	MO	DAY	HOUR	LATITUDE DEG	MIN		LONGITUDE DEG	MIN		OBS G MGAL	THEOR G MGAL	E&A MGAL	DEPTH METRS	BOUGUER ANOMALIES IN MGAL FOR 2.25 GM/CC STEPS FROM 2.3TO 3.0 2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00MEAN
1065	NOV	11	1200	9	57.7	S	161	34.5	E	978187	978174	13	1548	95	98	101	105	108	111	114	118	121	124	127	130	134	137	140	117
1066	NOV	11	1215	9	58.8	S	161	32.1	E	978161	978174	-13	2455	126	132	137	143	148	154	159	165	170	176	181	187	192	198	203	176
1067	NOV	11	1230	9	0.0	S	161	30.2	E	978169	978175	-5	1859	93	97	100	104	108	112	116	120	124	127	131	135	139	143	147	122
1068	NOV	11	1245	9	1.0	S	161	28.2	E	978188	978175	13	1419	87	90	93	96	99	102	105	107	110	113	116	119	122	125	128	106
1069	NOV	11	1300	9	2.3	S	161	25.8	E	978210	978176	34	1086	92	94	96	99	101	103	105	108	110	112	114	117	119	121	123	103
1070	NOV	11	1315	9	3.0	S	161	24.8	E	978214	978177	37	908	85	87	89	91	93	94	96	98	100	102	104	106	108	110	111	92
1071	NOV	11	1330	9	5.7	S	161	24.2	E	978235	978178	57	412	79	80	80	81	82	83	84	85	86	86	87	88	89	90	91	79
1072	NOV	11	1345	9	7.4	S	161	24.2	E	978217	978179	38	885	85	87	89	90	92	94	96	98	100	101	103	105	107	109	111	92
1073	NOV	11	1400	9	9.4	S	161	23.7	E	978194	978179	14	1036	69	71	73	75	78	80	82	84	86	88	91	93	95	97	99	79
1074	NOV	11	1415	9	11.2	S	161	23.7	E	978175	978180	-4	1857	93	97	101	104	108	112	116	120	124	128	131	135	139	143	147	122
1075	NOV	11	1430	9	13.1	S	161	21.7	E	978161	978181	-19	2022	87	91	95	99	104	108	112	116	120	125	129	133	137	141	145	121
1076	NOV	11	1445	9	15.0	S	161	23.5	E	978159	978182	-23	2131	89	93	98	102	107	111	115	120	124	129	133	138	142	146	151	125
1077	NOV	11	1500	9	16.8	S	161	25.7	E	978156	978183	-26	2183	89	94	98	103	107	112	116	121	126	130	135	139	144	148	153	127
1078	NOV	11	1515	9	18.7	S	161	27.7	E	978156	978184	-27	2170	87	91	96	100	105	109	114	118	123	127	132	136	141	145	150	124
1079	NOV	11	1530	9	20.5	S	161	29.5	E	978157	978185	-26	2131	85	89	94	98	103	107	112	116	121	125	129	134	138	143	147	122
1080	NOV	11	1545	9	22.4	S	161	31.3	E	978161	978186	-24	2244	95	100	105	109	114	119	123	128	133	137	142	147	152	156	161	135
1081	NOV	11	1600	9	24.2	S	161	33.3	E	978163	978186	-22	2320	99	104	109	114	119	123	128	133	138	143	147	152	157	162	167	141
1082	NOV	11	1615	9	26.1	S	161	35.5	E				2326																
1083	NOV	11	1630	9	27.9	S	161	37.1	E	978193	978188	4	2455	134	139	144	149	154	160	165	170	175	180	185	190	195	200	205	179
1084	NOV	11	1645	9	29.8	S	161	39.1	E	978183	978189	-5	2937	144	150	155	161	167	173	179	185	191	197	203	208	214	220	226	198
1085	NOV	11	1700	9	31.6	S	161	40.9	E	978190	978190	0	2468	130	135	141	146	151	156	161	166	171	176	182	187	192	197	202	176
1086	NOV	11	1715	9	33.5	S	161	43.7	E	978223	978191	32	2024	139	143	147	151	156	160	164	168	172	177	181	185	189	193	198	173
1087	NOV	11	1730	9	35.3	S	161	46.2	E				1527																
1088	NOV	11	1745	9	37.8	S	161	48.8	E				971																
1089	NOV	11	1800	9	39.1	S	162	1.2	E				1535																
1090	NOV	11	1815	9	40.4	S	162	3.1	E	978225	978194	31	2406	159	163	168	173	178	183	188	193	198	203	208	213	218	223	228	202
1091	NOV	11	1830	9	41.7	S	162	5.0	E	978154	978195	-40	2958	114	122	128	134	140	146	152	158	165	171	177	183	189	195	201	173
1092	NOV	11	1845	9	43.0	S	162	7.0	E	978145	978196	-50	3467	132	139	147	154	161	168	175	183	190	197	204	211	218	226	233	203
1093	NOV	11	1900	9	44.4	S	162	9.0	E	978160	978196	-35	3497	153	161	174	182	190	197	205	213	220	228	236	243	251	259	267	236
1094	NOV	11	1915	9	45.7	S	162	11.0	E				4498																
1095	NOV	11	1930	9	47.0	S	162	13.0	E	978106	978198	-91	4730	158	168	177	187	197	207	217	227	236	246	256	266	276	285	295	262
1096	NOV	11	1945	9	48.2	S	162	15.0	E				5302																
1097	NOV	11	2000	9	49.6	S	162	13.0	E	978075	978199	-123	5301	156	167	178	189	200	211	222	233	244	255	266	277	288	299	310	275
1098	NOV	11	2015	9	50.9	S	162	18.1	E				5445																
1099	NOV	11	2030	0	0.0		0	0.0					5894																
1100	NOV	11	2045	0	0.0		0	0.0					5980																
1101	NOV	11	2100	0	0.0		0	0.0					6085																
1102	NOV	11	2115	0	0.0		0	0.0					6098																

SEA GRAVITY REDUCTIONS FOR USS WANDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1944

CAST	MO DAY HR	LATITUDE DEG MIN	LONGITUDE DEG MIN	OBS G	THEOR G	FAA MGAL	DEPTH M	BOUGUER ANOMALIES IN MGAL FOR 2.35 GM/CC STEPS FROM 2.370 3.0 2.35	2.40	2.50	2.60	2.70	2.80	2.90	3.00	MEAN
1141	NOV 12 700	0 0.0	0 0.0				2185									
1142	NOV 12 715	0 0.0	0 0.0				2330									
1143	NOV 12 730	0 0.0	0 0.0				2404									
1144	NOV 12 745	0 0.0	0 0.0				2365									
1145	NOV 12 800	12 43.0 S	164 3.0 E				2703									
1146	NOV 12 815	0 0.0	0 0.0				2460									
1147	NOV 12 830	0 0.0	0 0.0				2000									
1148	NOV 12 845	0 0.0	0 0.0				2000									
1149	NOV 12 900	0 0.0	0 0.0				2460									
1150	NOV 12 915	0 0.0	0 0.0				3384									
1151	NOV 12 930	0 0.0	0 0.0				4038									
1152	NOV 12 945	0 0.0	0 0.0				5403									
1153	NOV 12 1000	12 51.0 S	164 52.0 E				5360									
1154	NOV 12 1015	0 0.0	0 0.0				6210									
1155	NOV 12 1030	0 0.0	0 0.0				6003									
1156	NOV 12 1045	0 0.0	0 0.0				7188									
1157	NOV 12 1100	0 0.0	0 0.0				6604									
1158	NOV 12 1115	0 0.0	0 0.0				6604									
1159	NOV 12 1130	0 0.0	0 0.0				6210									
1160	NOV 12 1145	0 0.0	0 0.0				5857									
1161	NOV 12 1200	0 0.0	0 0.0				5645									
1162	NOV 12 1215	12 56.0 S	164 15.7 E				5778									
1163	NOV 12 1230	0 0.0	0 0.0				5245									
1164	NOV 12 1245	0 0.0	0 0.0				5056									
1165	NOV 12 1300	12 54.2 S	164 11.8 E	978165	978236	-69	4860	188 198 208 218 228 238 248 258 268 278 288 298 308 318 328 335								
1166	NOV 12 1315	12 54.0 S	164 9.0 E	978178	978235	-56	4986	206 217 227 237 248 258 268 278 288 298 310 320 330 341 351 317								
1167	NOV 12 1330	12 53.8 S	164 8.7 E	978180	978236	-55	5265	222 233 244 255 266 277 288 298 309 320 331 342 353 364 375 340								
1168	NOV 12 1345	11 0.3 S	164 7.5 E	978183	978237	-47	5487	242 254 265 276 288 299 311 322 333 345 356 368 379 391 402 365								
1169	NOV 12 1400	11 3.0 S	164 6.3 E	978200	978238	-37	5498	252 264 275 286 298 309 321 332 344 355 366 378 389 401 412 375								
1170	NOV 12 1415	11 4.7 S	164 5.1 E	978206	978239	-33	5232	243 254 265 276 286 297 308 319 330 341 352 362 373 384 395 360								
1171	NOV 12 1430	11 5.0 S	164 3.9 E				4884									
1172	NOV 12 1445	11 5.3 S	163 59.1 E	978184	978239	-55	5270	223 234 244 255 266 277 288 298 309 320 331 342 353 364 375 341								
1173	NOV 12 1500	11 5.5 S	163 57.4 E				5460									
1174	NOV 12 1515	11 3.7 S	163 55.3 E				5344									
1175	NOV 12 1530	11 3.0 S	163 53.1 E	978186	978239	-52	5450	246 258 270 281 293 305 316 328 340 352 363 375 387 398 410 373								
1176	NOV 12 1545	11 5.7 S	163 50.9 E	978192	978240	-46	5450	251 263 275 286 298 310 322 333 345 357 368 380 392 404 415 378								
1177	NOV 12 1600	11 7.7 S	163 48.7 E	978197	978241	-43	5670	254 268 280 291 303 315 327 338 350 362 374 385 397 409 421 384								
1178	NOV 12 1615	11 9.2 S	163 47.2 E	978211	978243	-39	5237	251 262 273 284 295 306 317 328 339 350 361 372 383 394 405 370								

SEA GRAVITY REDUCTIONS FOR USS MANBANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1944

CARD	NO	DAY	HOUR	LATITUDE DEG	MIN		LONGITUDE DEG	MIN		OBS G THEOR G		EOA	DEPTH	BOUGUER ANOMALIES IN MGAL FOR 2.35 GM/CC STEPS FROM 2.3 TO 3.0							
										MGAL	MGAL	MGAL	MTRS	2.35	2.40	2.45	2.50	2.55	2.60	2.65	MEAN
1178	NOV	12	1630	11	10.3	S	163	45.9	E	978217	978242	-24	4970	238	243	258	265	272	283	301	313	320	331	341	351	362	372	382	389
1180	NOV	12	1645	0	0.0		0	0.0					4772																
1181	NOV	12	1700	0	0.0		0	0.0					5228																
1182	NOV	12	1715	0	0.0		0	0.0					5418																
1183	NOV	12	1730	0	0.0		0	0.0					5567																
1184	NOV	12	1745	11	12.7	S	163	36.9	E	978138	978244	-106	5483	135	207	219	230	242	254	266	277	289	301	313	325	336	348	360	373
1185	NOV	12	1800	11	14.1	S	163	34.3	E				5496																
1186	NOV	12	1815	11	15.4	S	163	32.9	E				5617																
1187	NOV	12	1830	11	16.6	S	163	31.7	E	978200	978246	-36	4957	225	235	245	256	266	276	287	297	307	317	328	338	348	358	368	335
1188	NOV	12	1845	11	17.7	S	163	30.4	E	978221	978247	-25	4930	235	245	255	266	276	286	296	307	317	327	337	348	358	368	378	344
1189	NOV	12	1900	0	0.0		0	0.0					4665																
1190	NOV	12	1915	0	0.0		0	0.0					4779																
1191	NOV	12	1930	0	0.0		0	0.0					4791																
1192	NOV	12	1945	0	0.0		0	0.0					5063																
1193	NOV	12	2000	0	0.0		0	0.0					5041																
1194	NOV	12	2015	0	0.0		0	0.0					5835																
1195	NOV	12	2030	0	0.0		0	0.0					0																
1196	NOV	12	2045	11	16.3	S	163	14.7	E	978138	978246	-107		**********															
1197	NOV	12	2100	11	17.7	S	163	13.7	E	978162	978247	-84		**********															
1198	NOV	12	2115	11	19.2	S	163	12.8	E	978171	978247	-76		**********															
1199	NOV	12	2130	11	20.7	S	163	9.2	E	978174	978248	-74		**********															
1200	NOV	12	2145	0	0.0		0	0.0					0																
1201	NOV	12	2200	0	0.0		0	0.0					0																
1202	NOV	12	2215	0	0.0		0	0.0					0																
1203	NOV	12	2230	0	0.0		0	0.0					7633																
1204	NOV	12	2245	11	16.6	S	163	54.9	E	978077	978246	-168		**********															
1205	NOV	12	2300	11	19.6	S	163	53.5	E				7206																
1206	NOV	12	2315	11	20.9	S	163	52.7	E	978106	978248	-141	6712	213	227	241	255	269	282	296	310	324	338	352	366	380	394	408	360
1207	NOV	12	2330	11	22.2	S	163	51.9	E	978140	978249	-109	6321	225	238	251	264	277	291	304	317	330	343	356	369	382	396	409	371
1208	NOV	12	2345	0	0.0		0	0.0					6312																
1209	NOV	13	0	0	0.0		0	0.0					5514																
1210	NOV	13	15	0	0.0		0	0.0					8458																
1211	NOV	13	30	0	0.0		0	0.0					8550																
1212	NOV	13	45	11	13.5	S	163	41.3	E	978096	978244	-157	7978	259	275	291	307	324	340	356	373	389	405	422	438	454	471	487	445
1213	NOV	13	100	11	14.9	S	163	40.5	E	978107	978245	-137	7460	256	272	287	303	319	334	350	365	381	396	411	427	443	458	473	432
1214	NOV	13	115	11	16.2	S	163	39.9	E	978117	978246	-129	7255	244	259	273	288	303	317	332	347	361	376	391	405	420	435	449	409
1215	NOV	13	130	11	17.3	S	163	39.2	E	978143	978246	-103	6861	250	273	287	301	316	330	344	358	373	387	401	415	430	444	458	418
1216	NOV	13	145	11	18.5	S	163	38.6	E	978150	978247	-97	6467	254	267	280	294	307	321	334	348	361	374	388	401	415	428	442	404

SEA GRAVITY REDUCTIONS FOR USS WENDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1944

CARD	MO	DAY	HOUR	LATITUDE DEG	MIN		LONGITUDE DEG	MIN		OBS G	THEOR G	FAA MGAL	DEPTH METERS	BOUGUER ANOMALIES IN MGAL FOR 2.25 GM/CC STEPS FROM 2.370 3.0 2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00MEAN
1217	NOV	13	200	11	19.7	S	162	33.3	E				6351								
1218	NOV	13	215	0	0.0		0	0.0					6940								
1219	NOV	13	230	0	0.0		0	0.0					6940								
1220	NOV	13	245	0	0.0		0	0.0					7830								
1221	NOV	13	300	0	0.0		0	0.0					7520								
1222	NOV	13	315	0	0.0		0	0.0					0								
1223	NOV	13	330	11	19.7	S	162	33.3	E	978115	978248	-131	7102	248	263	278	292	307	322	337	352	367	382	397	412	427	442	457	415
1224	NOV	13	345	11	21.2	S	162	33.7	E	978132	978249	-116	0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
1225	NOV	13	400	11	22.5	S	162	33.7	E	978141	978250	-107	0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
1226	NOV	13	415	11	24.8	S	162	33.2	E	978153	978251	-97	6880	256	280	294	309	323	337	351	366	380	394	409	423	437	451	466	424
1227	NOV	13	430	11	26.7	S	162	27.3	E	978150	978252	-92	6330	245	258	271	285	298	311	324	338	351	364	377	391	404	417	431	388
1228	NOV	13	445	0	0.0		0	0.0					6800								
1229	NOV	13	500	0	0.0		0	0.0					7130								
1230	NOV	13	515	0	0.0		0	0.0					7378								
1231	NOV	13	530	0	0.0		0	0.0					7824								
1232	NOV	13	545	0	0.0		0	0.0					8034								
1233	NOV	13	600	0	0.0		0	0.0					8155								
1234	NOV	13	615	11	19.2	S	162	19.4	E	978079	978247	-167	7779	243	259	275	291	308	324	340	356	372	388	404	421	437	453	469	427
1235	NOV	13	630	11	20.8	S	162	9.7	E	978096	978248	-151	7418	240	255	271	286	302	317	332	348	363	379	394	409	425	440	456	414
1236	NOV	13	645	11	21.6	S	162	7.8	E	978124	978249	-124	0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
1237	NOV	13	700	0	0.0		0	0.0					6665								
1238	NOV	13	715	0	0.0		0	0.0					6130								
1239	NOV	13	730	0	0.0		0	0.0					5956								
1240	NOV	13	745	0	0.0		0	0.0					5377								
1241	NOV	13	800	0	0.0		0	0.0					0								
1242	NOV	13	815	0	0.0		0	0.0					0								
1243	NOV	13	830	0	0.0		0	0.0					0								
1244	NOV	13	845	0	0.0		0	0.0					0								
1245	NOV	13	900	0	0.0		0	0.0					0								
1246	NOV	13	915	0	0.0		0	0.0					0								
1247	NOV	13	930	0	0.0		0	0.0					4306								
1248	NOV	13	945	0	0.0		0	0.0					4306								
1249	NOV	13	1000	11	27.0	S	161	35.0	E				4306								
1250	NOV	13	1015	0	0.0		0	0.0					4289								
1251	NOV	13	1030	0	0.0		0	0.0					4306								
1252	NOV	13	1045	0	0.0		0	0.0					4306								
1253	NOV	13	1100	0	0.0		0	0.0					4289								
1254	NOV	13	1115	0	0.0		0	0.0					4255								

SEA GRAVITY REDUCTIONS FOR USS WAINWRIGHT SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1944

CARD	MO	DAY	HOUR	LATITUDE DEG	MIN		LONGITUDE DEG	MIN		OBS G	THEOR G	F AIR MGAL	DEPTH METRS	BOUGUER ANOMALIES IN MGAL FOR 2.67 GM/CC STEPS FROM 2.37 TO 3.0 2.37	2.42	2.47	2.52	2.57	2.62	2.67	2.72	2.77	2.82	2.87	2.92	2.97	3.00	MEAN
1255	NOV	13	1130	0	0.0		0	0.0					4212															
1256	NOV	13	1145	0	0.0		0	0.0					4174															
1257	NOV	13	1200	11	34.0	S	161	41.0	E				4354															
1258	NOV	13	1215	0	0.0		0	0.0					4448															
1259	NOV	13	1230	0	0.0		0	0.0					4583															
1260	NOV	13	1245	0	0.0		0	0.0					4488															
1261	NOV	13	1300	0	0.0		0	0.0					4440															
1262	NOV	13	1315	0	0.0		0	0.0					4488															
1263	NOV	13	1330	0	0.0		0	0.0					4440															
1264	NOV	13	1345	0	0.0		0	0.0					4534															
1265	NOV	13	1400	11	37.3	S	161	54.4	E	978261	978258	3	4534	243	252	262	271	280	290	299	309	318	327	337	346	356	365	374	341
1266	NOV	13	1415	0	0.0		0	0.0					4478															
1267	NOV	13	1430	0	0.0		0	0.0					4534															
1268	NOV	13	1445	0	0.0		0	0.0					4630															
1269	NOV	13	1500	11	31.3	S	161	54.5	E				4956															
1270	NOV	13	1515	0	0.0		0	0.0					4917															
1271	NOV	13	1530	0	0.0		0	0.0					5287															
1272	NOV	13	1545	0	0.0		0	0.0					6304															
1273	NOV	13	1600	0	0.0		0	0.0					6353															
1274	NOV	13	1615	0	0.0		0	0.0					6843															
1275	NOV	13	1630	0	0.0		0	0.0					7210															
1276	NOV	13	1645	0	0.0		0	0.0					7613															
1277	NOV	13	1700	11	17.4	S	161	58.7	E	978282	978246	-165	7645	238	254	263	285	301	317	333	349	365	381	396	412	428	444	460	410
1278	NOV	13	1715	0	0.0		0	0.0					6756															
1279	NOV	13	1730	0	0.0		0	0.0					6556															
1280	NOV	13	1745	0	0.0		0	0.0					5206															
1281	NOV	13	1800	11	8.3	S	161	58.5	E	978164	978241	-76	5079	191	201	212	222	232	244	254	265	275	286	296	307	317	328	338	304
1282	NOV	13	1815	11	6.6	S	161	58.2	E	978172	978240	-67	5387	216	228	239	250	261	272	283	295	306	317	328	339	351	362	373	337
1283	NOV	13	1830	11	5.5	S	161	58.2	E	978187	978240	-51	4678	195	205	214	224	234	244	253	263	273	282	292	302	312	321	331	297
1284	NOV	13	1845	11	3.5	S	161	58.2	E				3400															
1285	NOV	13	1900	11	2.5	S	161	55.7	E	978248	978238	10		**********															
1286	NOV	13	1915	11	2.0	S	161	53.6	E	978235	978238	-3	3880	203	211	219	227	235	243	251	259	267	275	284	292	300	308	316	285
1287	NOV	13	1930	11	0.8	S	161	51.0	E				3870															
1288	NOV	13	1945	10	59.7	S	161	49.2	E	978221	978236	-14		**********															
1289	NOV	13	2000	10	58.0	S	161	46.1	E	978191	978236	-43	4147	175	183	192	200	209	218	226	235	244	252	261	269	278	287	295	263
1290	NOV	13	2015	10	59.0	S	161	43.5	E	978203	978235	-31	4317	186	195	204	213	222	232	241	250	259	268	277	286	295	304	313	281	289
1291	NOV	13	2030	10	54.8	S	161	40.8	E	978165	978235	-70	5482	250	261	273	284	295	307	318	329	341	352	364	375	386	398	409	373
1292	NOV	13	2045	10	54.1	S	161	38.7	E	978203	978236	-33	5521	260	271	282	294	305	317	328	340	351	362	374	385	397	408	420	383

SEA GRAVITY REDUCTIONS FOR USS WANDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1944

CARD	MO	DAY	HOUR	LATITUDE DEG	MIN		LONGITUDE DEG	MIN		OBS G MGAL	THEOR G MGAL	FAA MGAL	DEPTH METRS	BOUGUER ANOMALIES IN MGAL FOR 2.25 GM/CC STEPS FROM 2.375 TO 3.0 2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00MEAN
1293	NOV	13	2100	10	55.4	S	161	36.0	E	978214	978234	-19	5102	250 260 271 281 292 302 313 324 334 345 356 366 377 387 398 364
1294	NOV	13	2115	10	54.6	S	161	34.2	E	978202	978232	-30	4550	200 210 220 228 247 257 266 276 286 295 304 314 323 332 342 309
1295	NOV	13	2130	10	53.8	S	161	31.8	E	978188	978232	-43	4337	186 195 204 213 222 231 240 249 259 267 276 285 294 303 312 279
1296	NOV	13	2145	10	53.3	S	161	29.9	E	978177	978232	-55	4411	177 187 196 205 214 223 232 241 251 260 269 278 287 296 306 273
1297	NOV	13	2200	10	52.1	S	161	27.4	E	978066	978232	-165	4337	63 72 81 90 99 108 117 125 135 144 153 162 171 180 189 156
1298	NOV	13	2215	10	51.4	S	161	24.9	E	978141	978232	-79	4717	178 188 198 208 217 227 237 247 257 266 276 286 296 306 315 282
1299	NOV	13	2230	10	50.8	S	161	21.6	E	978153	978231	-77	4693	170 180 190 200 210 219 229 239 249 258 268 278 288 297 307 273
1300	NOV	13	2245	10	49.3	S	161	19.3	E	978149	978230	-81		**********
1301	NOV	13	2300	10	48.5	S	161	17.5	E	978145	978230	-84	4722	165 174 184 194 204 214 223 233 243 253 263 272 282 292 302 268
1302	NOV	13	2315	10	50.5	S	161	14.9	E	978153	978231	-77	5298	221 232 243 254 265 276 287 298 309 320 331 342 353 364 375 339
1303	NOV	13	2330	10	53.0	S	161	17.3	E	978150	978232	-81	5296	197 207 218 229 240 250 261 271 282 293 303 314 324 335 346 310
1304	NOV	13	2345	10	55.8	S	161	17.1	E	978146	978234	-87	5707	213 225 237 249 261 273 285 296 308 320 332 344 356 367 379 342
1305	NOV	14	0	10	58.1	S	161	17.2	E	978138	978235	-97	5874	213 225 237 249 262 274 286 298 310 322 335 347 359 371 384 346
1306	NOV	14	15	11	1.1	S	161	17.1	E	978128	978237	-109	6451	242 254 270 283 297 311 325 339 353 366 380 394 408 421 435 397
1307	NOV	14	30	11	4.7	S	161	17.0	E	978148	978239	-90	6451	260 274 288 302 316 329 343 357 371 385 398 412 425 440 454 415
1308	NOV	14	45	11	6.0	S	161	17.0	E	978165	978240	-74	6214	253 266 279 292 305 318 331 343 356 369 382 395 408 421 434 396
1309	NOV	14	100	11	8.5	S	161	16.9	E	978190	978241	-51	5792	255 267 279 291 303 315 327 339 351 363 375 387 399 411 423 386
1310	NOV	14	115	11	10.9	S	161	16.9	E	978209	978243	-33	5295	245 256 267 278 289 300 311 322 333 344 355 366 377 388 399 364
1311	NOV	14	130	11	13.1	S	161	16.9	E	978224	978244	-19	7039	353 367 382 396 411 426 440 455 469 484 498 513 528 542 557 516
1312	NOV	14	145	11	15.8	S	161	16.9	E	978245	978245	0	4883	258 268 278 288 298 309 319 329 339 349 359 369 379 390 400 366
1313	NOV	14	200	11	18.5	S	161	16.6	E	978254	978247	7	4796	261 271 281 291 301 311 320 330 340 350 360 370 380 390 400 366
1314	NOV	14	215	11	21.2	S	161	15.4	E				4796	
1315	NOV	14	230	11	20.3	S	161	14.2	E	978250	978248	2	4726	252 261 271 281 291 301 310 320 330 340 350 359 369 379 389 355
1316	NOV	14	245	11	19.4	S	161	13.7	E	978251	978248	4	4774	256 266 276 286 296 306 315 325 335 345 355 365 375 385 395 361
1317	NOV	14	300	11	19.6	S	161	11.7	E	978249	978247	2	4578	244 254 263 273 282 292 301 311 320 330 339 349 358 368 377 344
1318	NOV	14	315	11	17.7	S	161	11.1	E	978243	978247	1	4584	243 253 262 272 281 291 300 310 319 329 338 348 357 367 376 343
1319	NOV	14	330	11	16.8	S	161	9.5	E	978244	978246	-1	4135	217 225 234 243 251 260 269 277 286 294 303 311 320 328 337 305
1320	NOV	14	345	11	15.9	S	161	8.0	E	978246	978246	0	4308	228 237 246 255 264 272 281 290 299 308 317 326 335 344 353 320
1321	NOV	14	400	11	15.0	S	161	6.2	E	978247	978245	2	4299	229 239 247 256 265 274 283 292 301 310 319 328 336 345 354 322
1322	NOV	14	415	11	14.2	S	161	3.5	E	978247	978245	2		**********
1323	NOV	14	430	11	13.3	S	161	1.1	E	978245	978244	1	4352	231 240 249 258 267 276 285 294 303 312 321 330 340 349 358 325
1324	NOV	14	445	11	12.4	S	160	58.5	E	978238	978244	-5	4235	218 227 235 244 253 262 271 279 288 297 306 315 323 332 341 309
1325	NOV	14	500	11	11.5	S	160	56.0	E	978241	978243	-1	4340	227 236 245 254 263 272 281 290 299 308 317 326 335 344 353 321
1326	NOV	14	515	11	10.6	S	160	53.7	E	978210	978242	-31	4296	195 203 212 221 230 239 248 257 266 275 284 293 302 310 319 287
1327	NOV	14	530	11	9.8	S	160	51.4	E	978212	978242	-29	4154	189 198 207 215 224 233 241 250 259 267 276 284 293 302 310 278
1328	NOV	14	545	11	9.0	S	160	49.1	E	978210	978242	-31	4237	192 201 210 219 228 236 245 254 263 272 280 289 298 307 315 283
1329	NOV	14	600	11	8.0	S	160	46.8	E	978130	978241	-110	4122	87 105 114 122 131 139 148 156 165 174 182 191 199 208 216 184
1330	NOV	14	615	11	6.0	S	160	47.4	E	978211	978240	-29		**********

SEA GRAVITY REDUCTIONS FOR USS WANDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1956

CARD	MO	DAY	HHMM	LATITUDE DEG	MIN		LONGITUDE DEG	MIN		IBS G MGAL	THEOR G MGAL	EAA MGAL	DEPTH MTRS	BOUGUER ANOMALIES IN MGAL FOR 0.05 GM/CC STEPS FROM 2.35 TO 3.0 2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	MEAN
1331	NOV	14	630	11	6.0	S	160	47.0	E	978214	978240	-25	3676	168	176	183	191	199	206	214	222	229	237	245	252	260	267	275	245
1332	NOV	14	645	11	4.0	S	160	48.2	E					0															
1333	NOV	14	700	0	0.0		0	0.0						3300															
1334	NOV	14	715	0	0.0		0	0.0						3335															
1335	NOV	14	730	0	0.0		0	0.0						4122															
1336	NOV	14	745	0	0.0		0	0.0						4796															
1337	NOV	14	800	0	0.0		0	0.0						5105															
1338	NOV	14	815	0	0.0		0	0.0						5680															
1339	NOV	14	830	0	0.0		0	0.0						5704															
1340	NOV	14	845	10	46.0	S	160	51.7	E					5712															
1341	NOV	14	900	10	44.0	S	160	52.0	E	978121	978228	-105	5548	197	198	210	221	233	244	256	267	279	291	302	314	325	337	348	311
1342	NOV	14	915	10	42.0	S	160	52.6	E	978122	978227	-104	5325	177	188	199	210	221	232	243	254	265	276	287	298	309	320	331	226
1343	NOV	14	930	10	40.0	S	160	53.0	E					5177															
1344	NOV	14	945	0	0.0		0	0.0						4726															
1345	NOV	14	1000	0	0.0		0	0.0						4705															
1346	NOV	14	1015	10	31.0	S	160	54.2	E	978128	978221	-93	4358	137	146	155	164	173	182	191	201	210	219	228	237	246	255	264	231
1347	NOV	14	1030	10	32.0	S	160	54.6	E					4354															
1348	NOV	14	1045	10	27.0	S	160	55.0	E	978141	978210	-77	3902	133	141	150	158	166	175	183	191	199	208	216	224	233	241	249	218
1349	NOV	14	1100	10	25.0	S	160	55.5	E	978151	978217	-65	3562	122	129	137	144	151	159	166	174	181	188	196	203	211	218	225	196
1350	NOV	14	1115	10	24.0	S	160	55.9	E					2980															
1351	NOV	14	1130	0	0.0		0	0.0						2302															
1352	NOV	14	1145	0	0.0		0	0.0						1784															
1353	NOV	14	1200	0	0.0		0	0.0						1205															
1354	NOV	14	1215	0	0.0		0	0.0						1269															
1355	NOV	14	1230	0	0.0		0	0.0						808															
1356	NOV	14	1245	10	17.2	S	160	52.2	E	978208	978213	-4	1010	128	130	132	135	137	139	141	143	145	147	149	151	154	156	158	138
1357	NOV	14	1300	0	0.0		0	0.0						1318															
1358	NOV	14	1315	0	0.0		0	0.0						0															
1359	NOV	14	1330	10	15.9	S	160	47.0	E	978223	978213	10	1605	100	103	107	110	114	117	121	124	128	131	135	138	142	146	149	125
1360	NOV	14	1345	10	15.4	S	160	44.8	E	978213	978212	7	1985	112	116	120	124	128	132	137	141	145	149	153	157	161	165	170	145
1361	NOV	14	1400	10	15.0	S	160	43.3	E	978197	978212	-14	2372	110	115	120	125	130	135	140	145	150	155	160	164	169	174	179	153
1362	NOV	14	1415	10	14.5	S	160	41.4	E	978189	978212	-22	2787	124	130	136	142	147	153	159	165	171	176	182	188	194	199	205	177
1363	NOV	14	1430	10	14.1	S	160	39.5	E	978201	978212	-9		**********															
1364	NOV	14	1445	10	13.6	S	160	37.6	E	978199	978211	-12	2314	110	114	118	124	129	134	138	143	148	153	158	163	167	172	177	151
1365	NOV	14	1500	10	13.2	S	160	35.7	E					2472															
1366	NOV	14	1515	10	12.7	S	160	33.9	E	978175	978211	-35	3463	148	155	162	169	177	184	191	198	205	213	220	227	234	241	248	219
1367	NOV	14	1530	10	12.2	S	160	31.9	E					4377															
1368	NOV	14	1545	10	11.8	S	160	29.9	E	978131	978210	-79	4709	174	184	194	204	214	224	234	244	254	264	274	283	293	303	313	279

SEA GRAVITY REDUCTIONS FOR USS WANDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1944

CARD	MO	DAY	HOUR	LATITUDE DEG	LATITUDE MIN		LONGITUDE DEG	LONGITUDE MIN		OBS G THEOR G MGAL	EAA MGAL	DEPTH METRS	BOUGUER ANOMALIES IN MGAL FOR 2.35 GM/CC SLABS FROM 2.30 TO 3.0 2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00 MEAN
1369	NOV	14	1600	10	11.3	S	160	27.0	E	978113	978210	-96	5153	176	186	197	208	218	229	240	250	261	272	282	293	304	315	325	331
1370	NOV	14	1615	10	10.8	S	160	26.2	E	978152	978210	-57	5133	213	224	234	245	256	266	277	288	298	309	320	330	341	352	362	368
1371	NOV	14	1630	10	10.4	S	160	24.9	E	978144	978210	-65	5346	216	228	238	250	261	272	283	294	305	316	327	338	350	361	372	376
1372	NOV	14	1645	0	0.0		0	0.0					5353																
1373	NOV	14	1700	10	10.0	S	160	15.0	E				5343																
1374	NOV	14	1715	0	0.0		0	0.0					4933																
1375	NOV	14	1730	0	0.0		0	0.0					4950																
1376	NOV	14	1745	0	0.0		0	0.0					5043																
1377	NOV	14	1800	10	6.0	S	160	7.0	E				5004																
1378	NOV	14	1815	0	0.0		0	0.0					4899																
1379	NOV	14	1830	0	0.0		0	0.0					4414																
1380	NOV	14	1845	0	0.0		0	0.0					4427																
1381	NOV	14	1900	10	5.0	S	159	56.0	E				5353																
1382	NOV	14	1915	0	0.0		0	0.0					5214																
1383	NOV	14	1930	0	0.0		0	0.0					5391																
1384	NOV	14	1945	0	0.0		0	0.0					5286																
1385	NOV	14	2000	10	3.8	S	159	40.7	E	978122	978206	-84	5108	190	201	212	223	233	244	255	266	277	287	298	309	320	330	341	347
1386	NOV	14	2015	10	3.1	S	159	33.1	E				5160																
1387	NOV	14	2030	10	2.3	S	159	27.4	E	978118	978205	-86	4888	171	181	191	201	212	222	232	242	252	262	272	283	293	303	313	319
1388	NOV	14	2045	10	1.6	S	159	25.4	E	978123	978205	-81	4522	157	166	176	185	195	204	213	223	232	241	251	260	270	279	288	295
1389	NOV	14	2100	0	0.0		0	0.0					4396																
1390	NOV	14	2115	9	58.2	S	159	21.7	E	978207	978203	4	4209	225	234	243	252	260	269	278	286	295	304	313	321	330	339	348	354
1391	NOV	14	2130	9	56.5	S	159	20.3	E	978211	978203	-8	5017	174	184	195	205	216	226	236	247	257	268	278	288	299	309	320	326
1392	NOV	14	2145	9	54.8	S	159	18.1	E	978193	978202	-7	5365	275	287	298	309	320	331	342	353	365	376	387	398	409	420	431	436
1393	NOV	14	2200	9	53.2	S	159	15.9	E	978209	978201	8	5373	291	303	314	325	336	347	358	369	381	392	403	414	425	436	448	453
1394	NOV	14	2215	9	51.4	S	159	14.2	E	978222	978200	22	5272	301	312	323	334	345	356	367	377	388	399	410	421	432	443	454	459
1395	NOV	14	2230	9	49.8	S	159	12.7	E	978244	978199	44	4179	265	273	282	291	299	308	317	325	334	343	351	360	369	377	386	391
1396	NOV	14	2245	9	48.2	S	159	11.1	E	978253	978198	53	4298	289	298	308	317	326	335	344	353	362	371	380	389	398	407	416	421
1397	NOV	14	2300	9	46.4	S	159	10.1	E	978256	978197	59	4293	286	294	303	312	321	330	339	348	357	366	375	383	392	401	410	415
1398	NOV	14	2315	9	45.0	S	159	10.7	E	978259	978197	63	4404	300	309	318	328	337	347	356	365	375	384	393	403	412	421	431	438
1399	NOV	14	2330	9	43.3	S	159	14.1	E				4425																
1400	NOV	14	2345	0	0.0		0	0.0					4547																
1401	NOV	15	0	0	0.0		0	0.0					4911																
1402	NOV	15	15	9	39.7	S	159	17.8	E	978115	978194	-78	5337	256	269	282	295	308	321	335	348	361	374	387	400	413	427	440	443
1403	NOV	15	30	9	38.3	S	159	13.4	E	978126	978193	-66	3421	124	131	139	146	154	162	169	177	184	192	199	207	214	222	229	230
1404	NOV	15	45	9	36.8	S	159	14.1	E	978136	978193	-55	3448	126	133	140	148	155	163	170	178	185	193	200	208	215	223	230	231
1405	NOV	15	100	9	35.3	S	159	14.7	E	978155	978192	-36	2637	102	107	113	118	124	129	135	140	146	151	157	162	168	173	179	181
1406	NOV	15	115	9	33.9	S	159	15.8	E	978168	978191	-23	2208	88	103	108	113	117	122	127	131	136	141	146	150	155	160	165	166

SEA GRAVITY REDUCTIONS FOR USS WANDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1944

CARD	MO	DAY	HOUR	LATITUDE DEG	LATITUDE MIN		LONGITUDE DEG	LONGITUDE MIN		OBS G MGAL	THEOR G MGAL	EAA MGAL	DEPTH METRS	BOUGUER ANOMALIES IN MGAL FOR 2.25 GM/CC STEPS FROM 2.3TO 3.0 2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00MEAN
1407	NOV	15	130	3	32.4	S	159	15.8	E	978174	978130	-15	2183	93	104	108	113	117	122	127	131	136	140	145	149	154	158	163	167
1408	NOV	15	145	3	30.5	S	159	17.3	E	978181	978130	-8	1908	91	95	99	103	107	111	115	119	123	127	131	135	139	143	147	151
1409	NOV	15	200	3	29.4	S	159	18.3	E	978187	978130	-1	1624	84	87	91	94	98	101	104	108	111	114	118	121	125	128	131	135
1410	NOV	15	215	3	28.0	S	159	20.1	E	978193	978130	3	1420	79	81	84	87	90	93	96	99	102	105	108	111	114	117	120	97
1411	NOV	15	230	3	26.5	S	159	21.1	E	978203	978130	14	1112	74	77	79	81	84	86	88	90	93	95	97	100	102	104	107	86
1412	NOV	15	245	3	0.0		0	0.0					0																
1413	NOV	15	300	3	0.0		0	0.0					0																
1414	NOV	15	315	3	0.0		0	0.0					0																
1415	NOV	15	330	3	0.0		0	0.0					0																
1416	NOV	15	345	3	0.0		0	0.0					0																
1417	NOV	15	400	3	0.0		0	0.0					0																
1418	NOV	15	415	3	0.0		0	0.0					0																
1419	NOV	15	430	3	0.0		0	0.0					433																
1420	NOV	15	445	3	0.0		0	0.0					381																
1421	NOV	15	500	3	0.0		0	0.0					559																
1422	NOV	15	515	3	0.0		0	0.0					0																
1423	NOV	15	530	3	0.0		0	0.0					0																
1424	NOV	15	545	3	0.0		0	0.0					0																
1425	NOV	15	600	3	0.0		0	0.0					709																
1426	NOV	15	615	3	0.0		0	0.0					0																
1427	NOV	15	630	3	17.4	S	159	53.7	E	978132	978133	-51		**********																
1428	NOV	15	645	3	10.7	S	159	52.9	E	978149	978194	-34		**********																
1429	NOV	15	700	3	0.0		0	0.0					0																
1430	NOV	15	715	3	0.0		0	0.0					0																
1431	NOV	15	730	3	0.0		0	0.0					0																
1432	NOV	15	745	3	0.0		0	0.0					0																
1433	NOV	15	800	3	0.0		0	0.0					0																
1434	NOV	15	815	3	0.0		0	0.0					0																
1435	NOV	15	830	3	0.0		0	0.0					0																
1436	NOV	15	845	3	0.0		0	0.0					0																
1437	NOV	15	900	3	0.0		0	0.0					0																
1438	NOV	15	915	3	0.0		0	0.0					0																
1439	NOV	15	930	3	0.0		0	0.0					0																
1440	NOV	15	945	3	0.0		0	0.0					0																
1441	NOV	15	1000	3	0.0		0	0.0					0																
1442	NOV	15	1015	3	0.0		0	0.0					0																
1443	NOV	15	1030	3	0.0		0	0.0					0																
1444	NOV	15	1045	3	0.0		0	0.0					0																

SEA GRAVITY REDUCTIONS FOR USS YANDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1944

CARD	MO	DAY	HOUR	LATITUDE DEG	MIN		LONGITUDE DEG	MIN		OBS G	THEOR G	FAA MGAL	DEPTH METRS	BOUGUER ANOMALIES IN MGAL FOR 2.25 GM/CC STEPS FROM 2.375 TO 3.0 2.30	2.40	2.50	2.60	2.75	2.80	2.90	3.00	MEAN
1521	NOV	16	600	0	0.0		0	0.0					0									
1522	NOV	16	615	0	0.0		0	0.0					0									
1523	NOV	16	630	0	0.0		0	0.0					0									
1524	NOV	16	645	0	0.0		0	0.0					0									
1525	NOV	16	700	0	0.0		0	0.0					0									
1526	NOV	16	715	0	0.0		0	0.0					0									
1527	NOV	16	730	0	0.0		0	0.0					0									
1528	NOV	16	745	0	0.0		0	0.0					0									
1529	NOV	16	800	0	0.0		0	0.0					0									
1530	NOV	16	815	0	0.0		0	0.0		978168	978049	110	84	123	123	124	124	124	124	124	125	125	125	125	125	125	126	126	123
1531	NOV	16	830	0	22.0	S	160	1.2	E				240											
1532	NOV	16	845	0	22.2	S	160	4.2	E	978247	978184	63	204	72	73	73	74	74	75	75	75	76	76	77	77	78	78	78	73
1533	NOV	16	900	0	21.6	S	160	7.2	E				200											
1534	NOV	16	915	0	20.4	S	160	9.6	E	978262	978185	77	365	97	97	98	99	100	100	101	102	103	104	104	105	106	107	107	97
1535	NOV	16	930	0	19.2	S	160	12.6	E	978268	978186	82	378	104	105	106	107	107	108	109	110	110	111	112	113	114	114	115	104
1536	NOV	16	945	0	18.6	S	160	15.6	E				351											
1537	NOV	16	1000	0	18.2	S	160	18.6	E	978230	978184	55	313	72	72	73	74	74	75	76	76	77	77	78	79	79	80	81	72
1538	NOV	16	1015	0	19.0	S	160	21.6	E	978236	978183	53	413	75	76	77	78	79	79	80	81	82	83	84	85	86	86	87	75
1539	NOV	16	1030	0	18.6	S	160	24.0	E	978183	978184	10	453	34	35	36	36	37	38	39	40	41	42	43	44	45	46	47	36
1540	NOV	16	1045	0	20.4	S	160	25.6	E	978160	978185	5	420	28	29	30	30	31	32	33	34	35	36	37	38	38	39	40	28
1541	NOV	16	1100	0	22.2	S	160	27.3	E	978180	978186	14	434	37	38	38	39	40	41	42	43	44	45	46	47	47	48	49	37
1542	NOV	16	1115	0	24.6	S	160	30.5	E				450											
1543	NOV	16	1130	0	24.6	S	160	27.6	E	978173	978187	-12	344	5	5	6	7	8	8	9	10	10	11	12	13	13	14	15	5
1544	NOV	16	1145	0	0.0		0	0.0					0											
1545	NOV	16	1200	0	0.0		0	0.0					48											
1546	NOV	16	1215	0	0.0		0	0.0					46											
1547	NOV	16	1230	0	22.8	S	160	17.4	E	978202	978186	96	31	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98
1548	NOV	16	1245	0	23.4	S	160	15.0	E	978200	978184	114	38	116	116	116	116	117	117	117	117	117	117	117	117	117	117	117	116
1549	NOV	16	1300	0	24.6	S	160	12.6	E	978201	978187	114	42	116	116	116	116	116	117	117	117	117	117	117	117	117	117	117	116
1550	NOV	16	1315	0	23.4	S	160	10.2	E	978200	978186	104	60	108	108	108	108	109	109	109	109	109	109	109	110	110	110	110	108
1551	NOV	16	1330	0	22.2	S	160	7.8	E	978277	978186	82	71	95	96	96	96	96	96	96	96	97	97	97	97	97	97	97	95
1552	NOV	16	1345	0	21.0	S	160	4.2	E	978240	978185	65	68	67	67	67	67	67	68	68	68	68	68	69	68	68	68	68	67
1553	NOV	16	1400	0	20.4	S	160	1.8	E	978227	978185	43	370	62	63	64	65	65	66	67	68	69	69	70	71	72	72	73	62
1554	NOV	16	1415	0	19.2	S	159	58.4	E	978204	978184	20	524	47	48	49	50	52	53	54	55	56	57	58	59	60	61	62	48
1555	NOV	16	1430	0	18.0	S	159	56.4	E	978184	978183	1	614	33	34	36	37	38	39	41	42	43	44	44	47	48	50	51	35
1556	NOV	16	1445	0	16.8	S	159	53.4	E	978181	978183	-1	670	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	24
1557	NOV	16	1500	0	16.2	S	159	51.6	E	978183	978183	-2	644	31	33	34	35	37	38	39	41	42	44	45	46	48	49	50	34
1558	NOV	16	1515	0	0.0		0	0.0					575											

SEA GRAVITY REDUCTIONS FOR USS WANDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1944

CARD	MO	DAY	HOUR	LATITUDE DEG	MIN		LONGITUDE DEG	MIN		OBS G MGAL	THEOR G MGAL	EOA MGAL	DEPTH METRS	BOUGUER ANOMALIES IN MGAL FOR 2.25 GM/CC STEPS FROM 2.3TO 3.0 2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00MEAN
1559	NOV	16	1530	9	15.0	S	159	46.8	E	978186	978182	4	737	43 44 46 48 49 51 52 54 55 57 58 60 61 63 64 47
1560	NOV	16	1545	9	12.8	S	159	43.8	E	978185	978181	4	943	44 46 47 49 51 53 54 56 58 60 61 63 65 67 68 50
1561	NOV	16	1600	9	13.8	S	159	41.4	E	978182	978181	1	709	38 39 41 43 44 45 47 48 49 51 52 54 55 57 58 41
1562	NOV	16	1615	9	0.0		0	0.0					696
1563	NOV	16	1630	9	0.0		0	0.0					776
1564	NOV	16	1645	9	13.2	S	159	35.4	E	978218	978181	37	632	74 75 77 78 80 81 82 84 85 87 88 90 91 93 94 77
1565	NOV	16	1700	9	13.4	S	159	33.4	E	978244	978181	64	342	82 82 83 84 84 85 86 87 87 88 89 89 89 91 91 82
1566	NOV	16	1715	9	13.6	S	159	31.4	E	978243	978181	67	419	89 90 91 92 93 93 94 95 96 97 98 99 100 100 101 89
1567	NOV	16	1730	9	13.3	S	159	27.1	E				588
1568	NOV	16	1745	9	15.0	S	159	25.5	E	978250	978182	68	982	114 116 118 120 122 123 125 127 129 131 132 134 135 138 140 121
1569	NOV	16	1800	9	0.0		0	0.0					1340
1570	NOV	16	1815	9	20.4	S	159	22.3	E	978204	978185	21	1476	110 113 117 120 124 127 131 134 138 141 145 148 151 155 158 135
1571	NOV	16	1830	9	23.0	S	159	20.6	E	978187	978186	11	1845	109 112 114 120 124 128 132 135 139 143 147 151 155 158 162 138
1572	NOV	16	1845	9	26.2	S	159	19.2	E				1900
1573	NOV	16	1900	9	26.2	S	159	17.1	E	978206	978187	19	1916	120 124 128 132 136 140 144 148 152 156 160 164 168 172 176 151
1574	NOV	16	1915	9	26.2	S	159	15.2	E	978225	978187	38	1916	130 143 147 151 155 159 163 167 171 175 179 183 187 191 195 170
1575	NOV	16	1930	9	26.3	S	159	13.6	E				1901
1576	NOV	16	1945	9	26.3	S	159	11.7	E	978221	978187	34	1723	125 128 132 135 139 143 146 150 153 157 160 164 168 171 175 151
1577	NOV	16	2000	9	0.0		0	0.0					1914
1578	NOV	16	2015	9	0.0		0	0.0					2262
1579	NOV	16	2030	9	0.0		0	0.0					2760
1580	NOV	16	2045	9	0.0		0	0.0					2502
1581	NOV	16	2100	9	0.0		0	0.0					2251
1582	NOV	16	2115	9	0.0		0	0.0					2569
1583	NOV	16	2130	9	0.0		0	0.0					0
1584	NOV	16	2145	9	0.0		0	0.0					2809
1585	NOV	16	2200	9	0.0		0	0.0					0
1586	NOV	16	2215	9	0.0		0	0.0					3131
1587	NOV	16	2230	9	0.0		0	0.0					0
1588	NOV	16	2245	9	0.0		0	0.0					2943
1589	NOV	16	2300	9	27.0	S	158	33.9	E				0
1590	NOV	16	2315	9	0.0		0	0.0					1790
1591	NOV	16	2330	9	0.0		0	0.0					0
1592	NOV	16	2345	9	0.0		0	0.0					0
1593	NOV	17	0	9	25.0	S	158	42.9	E				3611
1594	NOV	17	15	9	0.0		0	0.0					3706
1595	NOV	17	30	9	0.0		0	0.0					4442
1596	NOV	17	45	9	0.0		0	0.0					4567

SEA GRAVITY REDUCTIONS FOR USS WANDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1967

CARD	MO	DAY	HOUR	LATITUDE DEG	MIN		LONGITUDE DEG	MIN		OBS G MGAL	THEOR G MGAL	FAA MGAL	DEPTH METERS	BOUGUER ANOMALIES IN MGAL FOR 2.35 GM/CC STEPS FROM 2.3TO 3.0 2.35	2.40	2.50	2.60	2.70	2.80	2.90	3.00MEAN
1635	NOV	17	1230	0	0.0		0	0.0					3664								
1636	NOV	17	1245	0	0.0		0	0.0					3630								
1637	NOV	17	1300	9	18.0	S	157	19.0	E				3571								
1638	NOV	17	1315	0	0.0		0	0.0					4093								
1639	NOV	17	1330	0	0.0		0	0.0					4181								
1640	NOV	17	1345	0	0.0		0	0.0					4705								
1641	NOV	17	1200	9	13.0	S	157	13.0	E				4595								
1642	NOV	17	1215	0	0.0		0	0.0					4595								
1643	NOV	17	1230	0	0.0		0	0.0					4244								
1644	NOV	17	1245	0	0.0		0	0.0					4213								
1645	NOV	17	1300	0	0.0		0	0.0					4403								
1646	NOV	17	1315	0	0.0		0	0.0					4459								
1647	NOV	17	1330	0	0.0		0	0.0					4459								
1648	NOV	17	1345	0	0.0		0	0.0					4000								
1649	NOV	17	1400	0	0.0		0	0.0					3765								
1650	NOV	17	1415	0	0.0		0	0.0					0								
1651	NOV	17	1430	0	0.0		0	0.0					0								
1652	NOV	17	1445	0	0.0		0	0.0					0								
1653	NOV	17	1500	0	0.0		0	0.0					0								
1654	NOV	17	1515	0	0.0		0	0.0					4434								
1655	NOV	17	1530	0	0.0		0	0.0					4176								
1656	NOV	17	1545	8	47.5	S	156	37.1	E	978203	978160	33	4101	255	263	272	281	289	298	307	315	324	333	342	350	359	368	376	344
1657	NOV	17	1600	8	45.9	S	156	40.1	E	978214	978160	49	3444	230	237	244	251	258	265	273	280	287	294	301	308	316	323	330	300
1658	NOV	17	1615	8	44.3	S	156	43.2	E	978222	978160	54		**********															
1659	NOV	17	1630	8	42.7	S	156	36.4	E	978218	978167	51	3430	232	239	247	254	261	268	275	282	289	297	304	311	318	325	332	302
1660	NOV	17	1645	8	41.2	S	156	34.6	E	978254	978166	87	2755	233	239	244	250	256	261	267	273	279	284	290	296	301	307	313	285
1661	NOV	17	1700	8	39.6	S	156	33.7	E	978246	978166	81		**********															
1662	NOV	17	1715	0	0.0		0	0.0					1535								
1663	NOV	17	1730	0	0.0		0	0.0					3233								
1664	NOV	17	1745	0	0.0		0	0.0					4095								
1665	NOV	17	1800	0	0.0		0	0.0					4214								
1666	NOV	17	1815	0	0.0		0	0.0					0								
1667	NOV	17	1330	0	0.0		0	0.0					4004								
1668	NOV	17	1345	0	0.0		0	0.0					3762								
1669	NOV	17	1300	8	27.0	S	156	16.8	E	978210	978160	40	3731	247	254	262	270	278	285	293	301	309	316	324	332	340	347	355	325
1670	NOV	17	1315	8	25.5	S	156	14.7	E	978201	978160	42	3811	243	251	259	267	275	283	291	299	306	314	322	330	338	346	354	323
1671	NOV	17	1330	8	24.7	S	156	13.0	E	978207	978159	48	3430	232	240	247	254	261	268	275	283	290	297	305	312	319	326	334	304
1672	NOV	17	1345	8	22.3	S	156	12.6	E	978226	978159	68	3615	239	246	254	261	269	276	284	291	299	306	314	321	329	336	344	314

SEA GRAVITY REDUCTIONS FOR USS WANDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1944

CARD	MO	DAY	HOUR	LATITUDE DEG	LATITUDE MIN		LONGITUDE DEG	LONGITUDE MIN		OBS G MGAL	THEOR G MGAL	FAA MGAL	DEPTH MTRS	BOUGUER ANOMALIES IN MGAL FOR 0.05 GAUSS STEPS FROM 2.30 TO 3.0 2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	MEAN
1673	NOV	17	2000	8	22.8	S	156	8.5	E	978213	978159	54	3810	257	265	273	281	289	297	305	313	321	329	337	345	353	361	369	338
1674	NOV	17	2015	8	13.2	S	156	5.4	E	978226	978157	69	3805	250	259	266	274	282	290	298	306	314	321	329	337	345	353	361	330
1675	NOV	17	2030	8	17.6	S	156	4.2	E				3601																
1676	NOV	17	2045	8	16.1	S	156	2.1	E	978194	978156	38	3300	217	224	231	238	245	252	260	267	274	281	288	295	302	309	316	286
1677	NOV	17	2100	8	14.5	S	155	59.3	E	978196	978155	39		?**********															
1678	NOV	17	2115	8	12.8	S	155	57.8	E	978210	978154	56	3786	256	264	272	280	288	295	303	311	319	327	335	343	351	358	366	336
1679	NOV	17	2130	8	11.3	S	155	56.3	E	978182	978153	29	3796	228	236	244	252	260	267	275	283	291	299	307	315	322	330	338	307
1680	NOV	17	2145	8	10.0	S	155	54.9	E				3844																
1681	NOV	17	2200	8	11.8	S	155	53.3	E	978187	978154	44	3501	229	236	243	250	258	265	272	280	287	294	301	309	316	323	330	301
1682	NOV	17	2215	8	12.4	S	155	49.4	E	978208	978154	54	3534	244	252	259	267	274	281	289	296	304	311	319	326	334	341	349	319
1683	NOV	17	2230	8	13.4	S	155	44.8	E	978218	978154	64	3400	244	251	258	265	273	280	287	294	301	309	316	322	329	336	343	314
1684	NOV	17	2245	8	14.1	S	155	44.3	E	978210	978155	64	3501	249	256	264	271	278	286	293	300	307	315	322	329	336	344	351	321
1685	NOV	17	2300	8	14.0	S	155	41.7	E	978231	978155	76	3418	256	263	270	278	285	292	299	306	313	320	327	334	341	348	354	326
1686	NOV	17	2315	8	15.4	S	155	39.3	E	978233	978155	77	3454	250	256	263	271	278	285	292	299	306	314	321	328	335	342	350	320
1687	NOV	17	2330	8	14.0	S	155	36.0	E	978234	978155	79	3210	249	256	262	269	276	282	289	296	302	309	316	322	329	336	342	313
1688	NOV	17	2345	8	17.1	S	155	34.5	E	978233	978156	77		?**********															
1689	NOV	18	0	8	17.8	S	155	32.1	E	978228	978156	72	3473	256	263	270	277	285	292	299	306	313	321	328	335	342	349	357	327
1690	NOV	18	15	8	18.6	S	155	29.6	E	978222	978157	65		?**********															
1691	NOV	18	30	8	19.3	S	155	27.9	E	978210	978157	62	3511	247	255	262	269	277	284	291	298	306	313	320	328	335	342	349	320
1692	NOV	18	45	8	20.0	S	155	24.5	E	978227	978157	70	3701	256	263	271	278	286	294	301	309	316	324	331	339	346	354	361	331
1693	NOV	18	100	8	20.8	S	155	22.3	E	978237	978158	79	3454	262	269	276	283	290	297	305	312	319	326	333	340	348	355	362	332
1694	NOV	18	115	8	21.5	S	155	19.5	E	978238	978158	80	3320	251	257	264	271	277	284	291	297	304	311	318	324	331	338	344	315
1695	NOV	18	130	8	22.2	S	155	17.1	E	978227	978158	69	3329	240	247	253	260	267	273	280	287	293	300	307	314	320	327	334	304
1696	NOV	18	145	8	23.0	S	155	14.5	E	978231	978158	73	3605	263	270	278	285	293	300	307	315	322	330	337	345	352	360	367	337
1697	NOV	18	200	8	23.7	S	155	12.0	E	978198	978150	48	3948	248	256	264	272	281	289	297	305	314	322	330	338	346	355	363	331
1698	NOV	18	215	8	24.5	S	155	9.5	E	978196	978150	47	4463	263	272	281	291	300	309	318	328	337	346	355	365	374	383	393	350
1699	NOV	18	230	8	25.2	S	155	7.0	E	978189	978150	40	4424	261	271	280	289	298	307	316	325	335	344	353	362	371	380	389	357
1700	NOV	18	245	8	26.0	S	155	4.5	E	978183	978150	33	4166	253	262	271	279	288	297	305	314	323	331	340	348	357	366	374	342
1701	NOV	18	300	8	26.7	S	155	2.0	E	978183	978150	33	3934	242	250	258	266	274	282	290	297	305	313	321	329	337	345	353	322
1702	NOV	18	315	8	27.4	S	155	0.5	E	978184	978150	34	3977	244	252	261	269	277	285	294	302	310	318	327	335	343	351	360	328
1703	NOV	18	330	8	28.2	S	154	58.1	E	978187	978151	36	4214	240	258	266	275	284	293	301	310	319	328	336	345	354	363	371	330
1704	NOV	18	345	8	28.0	S	154	56.2	E	978188	978151	37	4214	240	258	267	276	284	293	302	311	319	328	337	345	354	363	372	330
1705	NOV	18	400	8	28.3	S	154	54.2	E	978173	978151	12	4386	244	253	262	271	281	290	299	308	317	326	335	344	353	362	372	330
1706	NOV	18	415	8	26.2	S	154	52.9	E	978180	978150	20	3473	204	211	218	226	233	240	247	254	262	269	276	283	290	298	305	275
1707	NOV	18	430	8	24.1	S	154	51.5	E	978210	978150	51	3361	228	235	242	249	256	263	270	277	284	291	298	305	312	319	326	297
1708	NOV	18	445	8	21.9	S	154	50.2	E	978208	978150	50	2843	200	206	212	218	224	230	236	242	248	254	259	265	271	277	283	255
1709	NOV	18	500	8	19.8	S	154	48.8	E	978194	978157	37	3409	217	224	231	239	246	253	260	267	274	281	288	295	302	309	316	287
1710	NOV	18	515	8	17.7	S	154	47.6	E	978201	978156	45		?**********															

SEA GRAVITY REDUCTIONS FOR USS WANDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1964

CARD	MO	DAY	HOUR	LATITUDE DEG	MIN		LONGITUDE DEG	MIN		OBS G MGAL	THEOR G MGAL	FAA MGAL	DEPTH METRS	BOUGUER ANOMALIES IN MGAL FOR 2.25 GM/CC STEPS FROM 2.25 TO 3.0 2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00MEAN
1717	NOV	18	530	8	15.4	S	154	44.3	E	978203	978155	47	3172	215	222	228	235	241	248	254	261	268	274	281	287	294	301	307	314
1718	NOV	18	545	8	13.5	S	154	45.1	E	978222	978154	67	2630	225	210	216	221	227	232	238	243	248	254	259	265	270	275	281	254
1719	NOV	18	600	8	11.3	S	154	43.8	E	978231	978153	78	2144	191	196	202	205	209	213	218	222	227	231	236	240	245	249	254	228
1714	NOV	18	615	8	9.2	S	154	42.5	E	978235	978152	82	2180	198	203	207	212	216	221	225	230	234	239	244	248	253	257	262	236
1715	NOV	18	630	8	7.1	S	154	41.2	E	978250	978152	98	1740	191	194	198	201	205	209	212	216	220	223	227	231	234	238	241	217
1716	NOV	18	645	8	5.0	S	154	39.9	E	978221	978151	70		**********															
1717	NOV	18	700	8	2.9	S	154	38.5	E	978199	978150	49	2834	198	204	210	216	222	228	234	240	245	251	257	263	269	275	281	253
1718	NOV	18	715	8	0.7	S	154	37.2	E	978181	978149	32	3571	225	233	241	248	256	264	271	279	286	294	302	309	317	324	332	302
1719	NOV	18	730	7	58.5	S	154	35.9	E	978177	978148	29	3689	223	231	239	246	254	262	269	277	285	292	300	307	315	323	330	300
1720	NOV	18	745	7	54.3	S	154	34.1	E				3660																
1721	NOV	18	800	0	0.0		0	0.0					3490																
1722	NOV	18	815	0	0.0		0	0.0					3390																
1723	NOV	18	830	0	0.0		0	0.0					3621																
1724	NOV	18	845	0	0.0		0	0.0					3661																
1725	NOV	18	900	0	0.0		0	0.0					0																
1726	NOV	18	915	0	0.0		0	0.0					0																
1727	NOV	18	930	0	0.0		0	0.0					0																
1728	NOV	18	945	0	0.0		0	0.0					0																
1729	NOV	18	1000	7	48.0	S	154	58.0	E				1542																
1730	NOV	18	1015	0	0.0		0	0.0					1353																
1731	NOV	18	1030	0	0.0		0	0.0					2305																
1732	NOV	18	1045	0	0.0		0	0.0					2490																
1733	NOV	18	1100	0	0.0		0	0.0					2453																
1734	NOV	18	1115	0	0.0		0	0.0					2960																
1735	NOV	18	1130	0	0.0		0	0.0					3150																
1736	NOV	18	1145	0	0.0		0	0.0					3505																
1737	NOV	18	1200	0	0.0		0	0.0					3631																
1738	NOV	18	1215	0	0.0		0	0.0					4233																
1739	NOV	18	1230	0	0.0		0	0.0					4534																
1740	NOV	18	1245	0	0.0		0	0.0					4956																
1741	NOV	18	1300	0	0.0		0	0.0					5615																
1742	NOV	18	1315	0	0.0		0	0.0					5654																
1743	NOV	18	1330	0	0.0		0	0.0					0																
1744	NOV	18	1345	0	0.0		0	0.0					4310																
1745	NOV	18	1400	0	0.0		0	0.0					3545																
1746	NOV	18	1415	0	0.0		0	0.0					0																
1747	NOV	18	1430	0	0.0		0	0.0					0																
1748	NOV	18	1445	0	0.0		0	0.0					0																

SEA GRAVITY REDUCTIONS FOR USS WAINWRIGHT SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1944

CARD	MO	DAY	HOUR	LATITUDE DEG	MIN		LONGITUDE DEG	MIN		OBS G MGAL	THEOR G MGAL	EAA MGAL	DEPTH METRS	BOUGUER ANOMALIES IN MGAL FOR 2.35 GM/CC STEPS FROM 2.3 TO 3.0 2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	MEAN
1749	NOV	18	1500	7	0.0		0	0.0					2256									
1750	NOV	18	1515	7	0.0		0	0.0					0									
1751	NOV	18	1530	7	0.0		0	0.0					1693									
1752	NOV	18	1545	7	0.0		0	0.0					1806									
1753	NOV	18	1600	7	0.0		0	0.0					1946									
1754	NOV	18	1615	7	0.0		0	0.0					1615									
1755	NOV	18	1630	7	0.0		0	0.0					375									
1756	NOV	18	1645	7	0.0		0	0.0					705									
1757	NOV	18	1700	7	26.7	S	155	53.0	E	978130	978135	-5	360	45	47	49	51	53	55	57	59	61	63	65	67	69	71	73	53
1758	NOV	18	1715	7	23.9	S	155	53.0	E	978111	978134	-23	1197	40	42	44	47	49	52	54	57	59	62	64	67	69	72	74	53
1759	NOV	18	1730	7	21.1	S	155	53.3	E	978109	978133	-25	1325	44	47	50	53	55	58	61	64	66	69	72	75	77	80	83	61
1760	NOV	18	1745	7	18.3	S	155	53.8	E	978107	978132	-24	1344	46	49	52	54	57	60	63	66	68	71	74	77	80	82	85	63
1761	NOV	18	1800	7	17.1	S	155	58.2	E	978072	978132	-59	1249	6	9	12	14	17	19	22	25	27	30	32	35	37	40	43	21
1762	NOV	18	1815	7	16.9	S	155	56.5	E	978123	978132	-8	1249	57	60	63	65	68	70	73	76	78	81	83	86	89	91	94	72
1763	NOV	18	1830	7	16.6	S	155	54.8	E	978131	978132	0	1240	65	68	70	73	75	78	80	83	86	88	91	93	96	99	101	80
1764	NOV	18	1845	7	16.3	S	155	53.1	E	978137	978132	6	1247	72	74	77	79	82	85	87	90	92	95	98	100	103	105	108	87
1765	NOV	18	1900	7	16.1	S	155	51.4	E	978144	978131	12	1247	78	81	83	86	88	91	94	96	99	101	104	106	109	112	114	93
1766	NOV	18	1915	7	15.9	S	155	49.7	E	978152	978131	21	1245	87	89	92	94	97	100	102	105	107	110	113	115	118	120	123	102
1767	NOV	18	1930	7	15.6	S	155	47.9	E	978164	978131	33	1210	97	100	102	105	107	110	112	115	117	120	122	125	127	130	132	111
1768	NOV	18	1945	7	15.4	S	155	46.2	E	978174	978131	43	1154	104	106	109	111	113	116	118	121	123	125	128	130	133	135	137	117
1769	NOV	18	2000	7	15.1	S	155	44.5	E	978177	978131	46	1138	106	108	111	113	115	118	120	122	125	127	130	132	134	137	139	118
1770	NOV	18	2015	7	14.9	S	155	42.8	E	978178	978131	48	1145	108	110	113	115	118	120	122	125	127	129	132	134	137	139	141	121
1771	NOV	18	2030	7	14.6	S	155	41.1	E	978177	978131	46	1154	107	110	112	115	117	119	122	124	126	129	131	134	136	138	141	120
1772	NOV	18	2045	7	14.4	S	155	39.4	E	978173	978131	42	1116	106	108	111	113	115	118	120	122	125	127	129	131	134	136	139	118
1773	NOV	18	2100	7	14.1	S	155	37.7	E	978176	978131	45	1037	103	105	108	110	112	114	117	119	121	123	126	128	130	133	135	114
1774	NOV	18	2115	7	13.9	S	155	36.0	E	978173	978131	42	1266	110	112	115	117	120	123	125	128	131	133	136	138	141	144	146	125
1775	NOV	18	2130	7	13.6	S	155	34.3	E	978172	978130	41	1305	110	113	115	118	121	124	126	129	132	134	137	140	142	145	148	126
1776	NOV	18	2145	7	13.4	S	155	32.6	E	978163	978130	33	1725	124	128	131	135	138	142	145	149	153	156	160	163	167	170	174	150
1777	NOV	18	2200	7	13.1	S	155	30.8	E	978161	978130	31	1520	111	114	117	120	123	127	130	133	136	139	142	146	149	152	155	132
1778	NOV	18	2215	7	12.9	S	155	29.1	E	978154	978130	26	1764	119	123	127	130	134	138	141	145	149	152	156	160	163	167	170	146
1779	NOV	18	2230	7	12.6	S	155	27.4	E	978152	978130	22	1857	120	124	127	131	135	139	142	147	151	154	158	162	165	170	174	149
1780	NOV	18	2245	7	12.4	S	155	25.7	E	978149	978130	19	2028	126	130	134	138	143	147	151	155	160	164	168	172	176	181	185	160
1781	NOV	18	2300	7	12.1	S	155	24.0	E	978146	978130	16	2103	127	132	136	141	145	149	154	158	162	167	171	175	180	184	189	163
1782	NOV	18	2315	7	11.9	S	155	22.3	E	978140	978130	11	2532	144	150	155	160	165	171	176	181	186	192	197	202	207	213	218	191
1783	NOV	18	2330	7	11.6	S	155	20.6	E	978131	978130	1	2543	136	141	146	152	157	162	167	173	178	183	189	194	199	204	210	183
1784	NOV	18	2345	7	11.4	S	155	18.9	E	978117	978130	-11	2824	137	143	149	155	160	166	172	178	184	190	196	202	207	213	219	191
1785	NOV	19	0	7	11.1	S	155	17.2	E				3187																
1786	NOV	19	15	7	10.9	S	155	15.5	E	978087	978129	-41	3337	137	144	151	158	165	172	179	185	194	201	208	215	222	229	236	206

SEA GRAVITY REDUCTIONS FOR USS WANDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1964

CARD	MO	DAY	HOUR	LATITUDE DEG	MIN		LONGITUDE DEG	MIN		OBS G MGAL	THEOR G MGAL	FAA MGAL	DEPTH METRS	BOUGUER ANOMALIES IN MGAL FOR 2.25 GM/CC STEPS FROM 2.30 TO 3.0 2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00MEAN
1787	NOV	10	30	7	10.6	S	156	13.7	E	978073	978120	-55	3926	150	158	167	175	183	191	199	207	215	223	231	239	248	256	264	272
1788	NOV	10	45	7	10.4	S	156	13.7	E				4105																
1789	NOV	10	100	7	10.1	S	156	13.4	E				4333																
1790	NOV	10	115	0	0.0		0	0.0					4553																
1791	NOV	10	130	0	0.0		0	0.0					4339																
1792	NOV	10	145	0	0.0		0	0.0					4701																
1793	NOV	10	200	0	0.0		0	0.0					4981																
1794	NOV	10	215	0	0.0		0	0.0					5268																
1795	NOV	10	230	0	0.0		0	0.0					5315																
1796	NOV	10	245	0	0.0		0	0.0					5470																
1797	NOV	10	300	0	0.0		0	0.0					5668																
1798	NOV	10	315	0	0.0		0	0.0					5910																
1799	NOV	10	330	0	0.0		0	0.0					6036																
1800	NOV	10	345	0	0.0		0	0.0					6031																
1801	NOV	10	400	0	0.0		0	0.0					6036																
1802	NOV	10	415	0	0.0		0	0.0					6886																
1803	NOV	10	430	0	0.0		0	0.0					6830																
1804	NOV	10	445	7	1.7	S	154	53.5	E	977037	978126	-188	6496	154	168	181	195	208	222	235	249	262	276	289	303	316	330	343	305
1805	NOV	10	500	7	2.5	S	154	51.5	E	977031	978126	-194	6594	153	167	180	194	208	221	235	249	263	276	290	304	317	331	345	306
1806	NOV	10	515	7	0.0	S	154	50.4	E	977022	978126	-203	6632	147	161	174	188	202	216	229	243	257	271	284	298	312	326	339	301
1807	NOV	10	530	6	57.2	S	154	49.2	E	977040	978124	-184	6728	171	185	198	213	227	241	254	268	282	296	310	324	338	352	366	327
1808	NOV	10	545	6	56.6	S	154	48.1	E	977052	978124	-171	6660	181	194	208	222	236	250	264	277	291	305	319	333	347	360	374	336
1809	NOV	10	600	6	52.7	S	154	46.9	E	977072	978123	-159		**********															
1810	NOV	10	615	6	51.0	S	154	45.9	E	977067	978122	-154		**********															
1811	NOV	10	630	6	49.2	S	154	44.8	E	977076	978122	-144	6102	182	195	208	220	233	246	259	272	285	297	310	323	336	349	362	324
1812	NOV	10	645	6	47.4	S	154	43.8	E	977048	978121	-172	6087	140	161	174	186	199	212	224	237	250	262	275	288	300	313	325	288
1813	NOV	10	700	6	45.6	S	154	42.7	E	977045	978120	-174	6093	147	159	172	184	197	210	222	235	248	260	273	286	298	311	324	286
1814	NOV	10	715	0	0.0		0	0.0					6212																
1815	NOV	10	730	6	42.1	S	154	40.3	E	977025	978119	-193	6114	120	142	155	167	180	193	205	218	231	243	256	269	282	294	307	270
1816	NOV	10	745	6	40.2	S	154	39.3	E	977019	978119	-199	6054	120	133	145	158	170	183	195	208	221	233	246	258	271	283	296	259
1817	NOV	10	800	6	38.5	S	154	38.2	E	977020	978118	-197		**********															
1818	NOV	10	815	6	36.7	S	154	37.1	E	977017	978117	-200	5730	102	114	126	138	150	162	174	185	197	209	221	233	245	257	269	231
1819	NOV	10	830	6	35.0	S	154	36.2	E	977006	978117	-200	5825	103	115	127	140	152	164	177	189	201	213	226	238	250	263	275	238
1820	NOV	10	845	0	0.0		0	0.0					5633																
1821	NOV	10	900	0	0.0		0	0.0					5697																
1822	NOV	10	915	6	33.4	S	154	33.9	E	977005	978116	-211	6030	107	120	132	145	157	170	182	195	207	220	232	245	257	270	282	245
1823	NOV	10	930	6	34.6	S	154	33.3	E	977004	978117	-222	6453	118	131	145	158	172	185	199	212	225	239	252	265	279	292	305	268
1824	NOV	10	945	6	35.8	S	154	32.8	E	977003	978117	-227	6817	122	137	151	165	179	193	207	221	236	250	264	278	292	306	321	281

SEA GRAVITY PREDICTIONS FOR USS WANDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1942

| CARD | MO | DAY | HOUR | LATITUDE DEG | LATITUDE MIN | | LONGITUDE DEG | LONGITUDE MIN | | IGS C THEO2 G MGAL | EAA MGAL | DEPTH MTRS | BOUGUER ANOMALIES IN MGAL FOR 2.35 GM/CC STEPS FROM 2.370 2.35 | | |

SEA GRAVITY REDUCTIONS FOR USS WANDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1944

CARD	MO	DAY	HOUR	LATITUDE DEG	LATITUDE MIN		LONGITUDE DEG	LONGITUDE MIN		OBS G MGAL	THEOR G MGAL	EAR MGAL	DEPTH METRS	BOUGUER ANOMALIES IN MGAL FOR 2.25 GM/CC STEPS FROM 2.375 TO 3.0 2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	MEAN
1963	NOV	19	1930	6	20.5	S	153	3.4	E	978150	978114	36	4373	267	276	285	294	303	312	321	330	339	348	357	366	375	385	394	361
1964	NOV	19	1945	6	26.3	S	153	8.2	E	978143	978114	29	4443	275	284	294	304	313	323	333	343	353	361	371	381	390	400	410	376
1965	NOV	19	2000	6	24.0	S	153	7.0	E	978133	978113	21	4842	276	286	296	306	317	327	337	347	357	367	377	387	397	407	417	383
1966	NOV	19	2015	6	21.7	S	153	6.5	E	978126	978113	24	4843	280	290	300	310	320	330	340	350	360	370	380	391	401	411	421	387
1967	NOV	19	2030	6	19.4	S	153	5.8	E	978117	978111	6	5004	279	289	299	309	319	329	339	349	359	369	379	389	399	409	419	384
1968	NOV	19	2045	6	17.1	S	153	5.2	E	978115	978111	5	5237	281	292	302	312	323	333	343	353	363	373	383	393	403	413	423	388
1969	NOV	19	2100	6	14.7	S	153	4.5	E	978109	978110	-0	5232	286	297	308	318	329	339	350	360	370	381	391	401	412	422	432	398
1970	NOV	19	2115	6	12.4	S	153	3.8	E	978074	978109	-34	5425	292	303	314	325	336	347	358	369	380	391	402	413	424	435	446	413
1971	NOV	19	2130	6	10.0	S	153	3.1	E	978060	978108	-47	5607	293	304	315	326	337	348	359	370	381	392	403	414	425	436	447	414
1972	NOV	19	2145	6	7.7	S	153	2.4	E	978033	978108	-74	5804	297	308	319	330	341	352	363	374	385	396	407	418	429	440	451	418
1973	NOV	19	2200	6	5.4	S	153	1.8	E	978016	978107	-90	5888	301	312	323	334	345	356	367	378	389	400	411	422	433	444	455	422
1974	NOV	19	2215	6	3.0	S	153	1.1	E				5253																
1975	NOV	19	2230	6	0.7	S	153	0.4	E	977994	978105	-111	6502	332	345	358	372	386	399	413	426	440	453	467	480	494	507	521	483
1976	NOV	19	2245	5	58.3	S	153	59.7	E	977975	978105	-129	6541	322	336	350	363	377	391	405	419	433	446	460	474	488	502	515	477
1977	NOV	19	2300	5	55.0	S	153	59.0	E	977960	978104	-155	7251	327	340	357	372	387	402	417	432	447	462	477	492	507	522	538	438
1978	NOV	19	2315	5	53.7	S	153	58.4	E	977935	978103	-168	7452	335	349	356	371	387	402	418	433	449	464	480	495	511	526	541	400
1979	NOV	19	2330	5	51.3	S	153	57.7	E	977931	978103	-171	7194	308	323	338	353	368	383	397	412	427	442	457	472	487	502	517	475
1980	NOV	19	2345	5	48.0	S	153	57.0	E	977941	978102	-160	6785	198	212	226	240	254	268	282	296	310	325	339	353	367	381	395	356
1981	NOV	20	0	5	45.6	S	153	56.3	E	977934	978101	-166	6969	154	167	179	192	204	217	230	242	255	267	280	293	305	318	330	293
1982	NOV	20	15	5	44.3	S	153	55.6	E	977951	978100	-148	7247	334	349	364	379	394	409	424	439	454	469	484	499	514	529	544	492
1983	NOV	20	30	5	42.0	S	153	55.0	E	977963	978100	-136	4439	35	104	113	123	132	141	150	159	168	177	186	196	205	214	223	190
1984	NOV	20	45	5	39.6	S	153	54.3	E	977973	978099	-125	4225	97	106	115	123	132	141	150	159	167	176	185	194	202	211	220	188
1985	NOV	20	100	5	37.2	S	153	53.6	E	977976	978098	-121	3952	87	95	103	111	120	128	136	144	152	161	169	177	185	193	202	170
1986	NOV	20	115	5	34.8	S	153	52.9	E	977973	978098	-118	3971	91	100	108	116	124	132	141	149	157	165	174	182	190	198	207	175
1987	NOV	20	130	5	32.6	S	153	52.2	E	977996	978097	-100	3746	97	105	113	120	128	136	143	151	159	167	175	182	190	198	206	175
1988	NOV	20	145	5	30.3	S	153	51.6	E	978002	978096	-94	3680	100	108	115	123	131	138	146	154	161	169	177	184	192	200	207	177
1989	NOV	20	200	5	27.9	S	153	50.9	E				3529																
1990	NOV	20	215	5	25.6	S	153	50.2	E	977983	978095	-111																	
1991	NOV	20	230	5	23.2	S	153	49.5	E	977988	978094	-106	3390	72	79	86	93	100	107	115	122	129	136	143	150	157	164	171	141
1992	NOV	20	245	5	20.9	S	153	48.8	E	977993	978094	-100	2914	53	59	66	72	78	84	90	96	102	108	114	120	126	132	138	110
1993	NOV	20	300	5	18.6	S	153	48.2	E	978015	978093	-77	2747	68	73	79	85	90	96	102	108	113	119	125	130	136	142	147	120
1994	NOV	20	315	5	16.2	S	153	47.5	E	978014	978092	-78	2460	51	55	61	66	72	77	83	87	93	97	103	107	113	118	123	96
1995	NOV	20	330	5	13.9	S	153	46.8	E	978009	978092	-82	2213	34	38	44	48	53	57	63	67	71	76	80	85	89	94	98	73
1996	NOV	20	345	5	11.6	S	153	46.1	E	978011	978091	-79	1909	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	51
1997	NOV	20	400	5	9.2	S	153	45.4	E	978001	978091	-88	1901	11	15	19	23	27	31	35	39	43	47	51	55	59	63	66	42
1998	NOV	20	415	5	6.9	S	153	44.8	E	977998	978090	-91	1967	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	44
1999	NOV	20	430	5	4.5	S	153	44.1	E	977978	978090	-110	1876	-6	-2	1	5	9	14	18	22	26	30	34	38	42	46	51	26
2000	NOV	20	445	5	2.2	S	153	43.4	E	977967	978089	-121	1883	-22	-18	-14	-10	-6	-2	1	5	9	13	17	21	25	29	33	8

SEA GRAVITY REDUCTIONS FOR USS WANDANK SOLOMON ISLANDS CRUISE OCTOBER THROUGH NOVEMBER 1964

CARD	MO	DAY	HOUR	LATITUDE DEG	MIN		LONGITUDE DEG	MIN		OBS G MGAL	THEOR G MGAL	EOA MGAL	DEPTH METRS	BOUGUER ANOMALIES IN MGAL FOR 2.35	2.40	2.50	2.60	2.70	2.80	2.90	3.00	MEAN FOR 2.30 GM/CC STEPS FROM 2.30 TO 3.0
1901	NOV	20	500	4	59.8	S	152	42.7	E	977958	978038	-120	1878	-25	-21	-17	-13	-8	-4	0	3	7	11	15	19	23	28	32	7
1902	NOV	20	515	4	57.5	S	152	43.0	E	977962	978037	-143	2185	-29	-23	-19	-14	-10	-5	-1	3	7	12	16	21	25	30	35	0
1903	NOV	20	530	4	55.2	S	152	41.4	E	977946	978037	-140	1838	-43	-39	-35	-31	-27	-23	-20	-16	-12	-9	-4	-1	2	6	10	-14
1904	NOV	20	545	4	53.8	S	152	40.7	E	977951	978036	-135	1743	-43	-39	-35	-32	-28	-24	-21	-17	-14	-10	-6	-3	0	3	7	-16
1905	NOV	20	600	4	50.5	S	152	40.0	E	977945	978036	-140	1934	-34	-30	-26	-22	-18	-14	-10	-5	-1	2	6	10	14	18	23	-1
1906	NOV	20	615	4	48.7	S	152	38.7	E	977929	978035	-155	2609	-12	-7	-1	3	9	15	20	25	31	37	43	48	54	59	65	38
1907	NOV	20	630	0	0.0		0	0.0					3043																
1908	NOV	20	645	0	0.0		0	0.0					3348																
1909	NOV	20	700	0	0.0		0	0.0					3312																
1910	NOV	20	715	0	0.0		0	0.0					2991																
1911	NOV	20	730	0	0.0		0	0.0					3029																
1912	NOV	20	745	0	0.0		0	0.0					2744																
1913	NOV	20	800	4	38.0	S	152	34.0	E				2723																
1914	NOV	20	815	0	0.0		0	0.0					2742																
1915	NOV	20	830	0	0.0		0	0.0					2780																
1916	NOV	20	845	0	0.0		0	0.0					2667																
1917	NOV	20	900	4	30.0	S	152	31.0	E				2631																
1918	NOV	20	915	0	0.0		0	0.0					2479																
1919	NOV	20	930	0	0.0		0	0.0					2329																
1920	NOV	20	945	0	0.0		0	0.0					2135																
1921	NOV	20	1000	4	20.0	S	152	27.0	E				2073																
1922	NOV	20	1015	0	0.0		0	0.0					0																
1923	NOV	20	1030	0	0.0		0	0.0					385																
1924	NOV	20	1045	0	0.0		0	0.0					404																
1925	NOV	20	1100	4	17.0	S	152	24.0	E				0																
1926	NOV	20	1115	0	0.0		0	0.0					338																
1927	NOV	20	1130	0	0.0		0	0.0					385																
1928	NOV	20	1145	0	0.0		0	0.0					385																
1929	NOV	20	1200	4	17.0	S	152	20.0	E				385																
1930	NOV	20	1215	0	0.0		0	0.0					385																
1931	NOV	20	1230	0	0.0		0	0.0					366																
1932	NOV	20	1245	0	0.0		0	0.0					104																
1933	NOV	20	1300	0	0.0		0	0.0					134																
1934	NOV	20	1315	0	0.0		0	0.0					0																
1935	NOV	20	1330	0	0.0		0	0.0					0																
1936	NOV	20	1345	0	0.0		0	0.0					0																
1937	NOV	20	1400	0	0.0		0	0.0					0																
1938	NOV	20	1415	0	0.0		0	0.0					0																

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Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D

Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1 ORIGINATING ACTIVITY *(Corporate author)*

Naval Postgraduate School
Monterey, California 93940

2a. REPORT SECURITY CLASSIFICATION

Unclassified

2b. GROUP

N.A.

3 REPORT TITLE

Marine Gravity Discrepancies In The Solomon Islands

4. DESCRIPTIVE NOTES *(Type of report and inclusive dates)*

Thesis

5 AUTHOR(S) *(First name, middle initial, last name)*

I'Anson, Lawrence Warren, Jr.

6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
June 1968	99	17

8a. CONTRACT OR GRANT NO.

b. PROJECT NO.

c.

d.

9a. ORIGINATOR'S REPORT NUMBER(S)

9b. OTHER REPORT NO(S) *(Any other numbers that may be assigned this report)*

10. DISTRIBUTION STATEMENT

[redacted]

11. SUPPLEMENTARY NOTES

12. SPONSORING MILITARY ACTIVITY

Naval Postgraduate School
Monterey, California 93940

13. ABSTRACT

In 1964 a reconnaissance marine gravity survey was conducted in the Solomon Islands by the Hawaii Institute of Geophysics, University of Hawaii. In 1965, a more detailed survey was conducted in the same area by the same investigators. In one particular area of the survey, gravity anomalies obtained in 1964 differed from those obtained in 1965 by as much as 168 milligals. In other areas where differences did occur, these were on the order of 25 milligals. This thesis reports the investigation carried out to determine the reason or reasons for the large discrepancies. Navigational positions were checked; the bathymetry obtained in 1964 was compared with other bathymetry available; the Eötvös correction was recalculated with the corrected station position and better resolution; and the gravity records were examined to determine if large vertical accelerations of the measuring platform could be the cause of the discrepancies. Some errors were discovered, but the large differences could not be eliminated.

DD FORM 1 NOV 65 1473 (PAGE 1)

S/N 0101-807-6811

Unclassified
Security Classification

A-31408

14 KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Gravity						
Solomon Islands, gravity						
Free-air anomaly						
Bouguer anomaly						
Eötvös correction						

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